REMEDIAL INVESTIGATION SUMMARY
FORMER GIBBLE'S QUARRY
MANHEIM BOROUGH, LANCASTER COUNTY, PENNSYLVANIA
PROJECT SVEI 1062G1

FEBRUARY 2008

PREPARED FOR

TCS FAMILY ENTERPRISES INC
2238 ROBERT FULTON HIGHWAY
PEACH BOTTOM, PENNSYLVANIA 17563
TEL (office): (717) 299 - 6631 TEL (home): (717) 548 – 1372

PREPARED BY:

SVEI SCHUYLKILL VALLEY ENGINEERING INC

160 WATER STREET
READING, PENNSYLVANIA 19605
TEL: (610) 921-9221
FAX: (610) 921-0464 EMAIL: svei@verizon.net

Florin Carjan P.E.
President

WARMKESSEL GEO-ENVIRONMENTAL, INC

1507 FRUSH VALLEY ROAD; SUITE 2
READING, PENNSYLVANIA 19605
TEL: (610) 898-7630
FAX: (610) 898-7633 EMAIL: wgei@juno.com

Jeffrey Warmkessel P.G.
President

UNT CONSULTING INC.

120 CHAPEL STREET
DOWNINGTOWN, PENNSYLVANIA 18635
TEL: (610) 873-8129
FAX: (610) 873-8425 EMAIL: untyagi@verizon.net

Upendra Tyagi PhD, P.E.
President

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EXECUTIVE SUMMARY

Schuylkill Valley Engineering Inc. (**SVEI**) was contracted by TCS FAMILY ENTERPRISES INC (**CLIENT**) to perform an investigation at the former Gibble's Quarry located in Manheim Borough, Lancaster County, Pennsylvania. The Pennsylvania Department of Environmental Protection (**PADEP**) had directed the Client to develop an investigative work plan to assess the site's environmental conditions. The work plan was discussed with Mr. Richard Morgan of PADEP, Waste Management Division, which indicated that the evaluation of the Gibble's Quarry should include as a minimum the following:

1. Define the area where the actual quarry is.
2. Determine the presence of 2 feet of cover material.
3. Define the consistency of the waste.
4. Install monitoring wells to define the groundwater gradient and characterize the plum.

The Client is requesting for a release of liability from PADEP under the Land Recycling and Environmental Remediation Act (Act 2). This request is based on the results of the site investigation work conducted at the site and limited remediation/restoration work conducted at the site under the direction of PADEP. The intent of this report is to present the information that reflects the requirements of Act 2 and the investigation and mitigation efforts conducted at the site by SVEI and the Client, with the approval of PADEP.

PROPERTY NAME: Former Gibble's Quarry.

PROPERTY DESCRIPTION: The Gibble's Quarry property, which was purchased by the Client at a sheriff tax sale in November 2002, was used for removal of construction stone until 1940's. At this time the property is open and is grass covered.

ADDRESS/LOCATION:

Address: 205 North Main Street
Manheim, 17545

MUNICIPALITY:

Name	Site Located
Manheim	North of Hazel Street north end and east of East Colebrook Road.

County: Lancaster

Latitude: 40^0 10' 8" N; **Longitude**: 76^0 23' 52" West

PROPERTY SPECIFICS

Size of the property: 4.36 acres.

Number of sites: 1

Combined acreage of sites: 4.36 acres

REMEDIATION

Background

Statewide health

x **Site-specific**

Special Industrial Area

PROPOSED FUTURE PROPERTY USE

x **Residential**

x **Non-residential**

SPECIAL FEATURES

Non-use aquifer approval date: N/A

Area-wide background approval date: N/A

Amount of waste removed other than soil and groundwater (cubic yards): 0

Municipal ordinance prohibiting groundwater use: not applicable

Post remediation care plan: not applicable

OTHER PROGRAMS:

Key State: None other than Pennsylvania Land Recycling and Environmental Remediation Act (Act 2)

Multi-site Agreement: No

Enterprise Zone: To be determined.

Keystone Opportunity Zone: To be determined.

ADMINISTRATIVE

Municipality request for public involvement plan. Not requested by the Municipality after Public Notification.

DEED NOTIFICATION

Deed acknowledgment: Applicable.

Deed Restriction: Applicable.

Costs related to soil cover: Approximately $95,000.00

Jobs created/saved: Jobs created during the construction phase of property development and increased revenue for the Borough from the new properties.

NARRATIVE

The project site (Gibble's Quarry) is a 4.36 acre property from which approximately 2.5 acres were quarried for construction stone. The former limestone quarry is located at the northern end of Hazel Street and east of East Colebrook Road, in the Borough of Manheim, Lancaster County, Pennsylvania (Refer to Figure 1 – Site Topography). On the Manheim 7.5 minute series, United States Geological Survey (U.S.G.S.) topographic map, the site can be located at 40^0 10' 8" North latitude and 76^0 23' 52" West longitude.

According to the information provided in the Non-Sampling Site Reconnaissance Summary Report for Gibble's Quarry, prepared under TDD NO F3-8802-19, EPA NO PA-689, Contract No 68-01-7346, prepared for Hazardous Site Control Division, US Environmental Protection Agency on May 13, 1988 by NUS Corporation, Superfund Division (**NUS Report**), the site was a privately owned limestone quarry purchased by Mr. Rufus Gibble, the former owner, in the 1940s. The NUS report indicated that Mr. Gibble used the quarry to dispose of municipal, residual and industrial wastes from 1955 through the 1980's. The quarry was never lined; the property owner (Mr. Gibble) has never applied or held a solid waste disposal permit, and had no groundwater monitoring wells.

As indicated in the NUS report, two local manufacturing industries had a major contribution in the disposal of the residual and hazardous wastes. Raybestos-Manhattan, Inc. also known as Raymark Industries, disposed asbestos waste and sludge in the quarry from 1968 through 1973. The Fuller Company disposed foundry sands, dust, and slag in the quarry from 1971 through 1977. In addition, a large amount of waste, which was deposited at the site, consists of municipal waste, demolition and flood debris after hurricane Agnes hit the area.

The site was identified through Superfund Notifications and was inspected in June 1984 by the Pennsylvania Department of Environmental Resources (PADER). At that time the NUS report indicated that Mr. Gibble no longer accepted hazardous wastes, but only municipal wastes, such as car carpets, tires, and automotive parts, dumped by local industries or individuals. In June 6, 1984, the PADER, Bureau of Solid Waste Management sent a letter to Mr. Rufus Gibble, which ordered cease and desist the dumping of solid waste and to compact and cover all exposed solid waste with at least 2 feet of uniform compacted soil within twenty-one days. On June 21, 1984, Mr. Eugene Gibble indicated that a big pile of soil located at the site will be used to cover the waste. The Site Visit Summary Report for Gibble's Quarry, dated July 5, 1988, prepared by NUS Corporation, Superfund Division indicates, that part of the former quarry was covered with fill; however, "some areas were void of vegetation and consisted of what appeared to be foundry sands and dust". Maintenance of the site included periodic grass mowing.

After TCS Family Enterprises Inc bought the property, PADEP required a soil and groundwater investigation at the former Gibble's quarry to determine if past unpermitted

disposal activities have impacted the soil and groundwater in the surrounding area. The request is presented in letter dated December 2, 2002 by PADEP, through Mr. Richard Morgan, Supervisor of Hazardous Site Cleanup Section. This investigation was to determine if the site presented a potential or actual threat to the public health and the environment. However, the Client intended to use the findings of this investigation and subsequent remedial activities (covering the area of concern with clean fill) to obtain a release of liability.

As per PADEP request SVEI performed the following operations:

a. Subsurface investigation of the former quarry to define the area where the actual quarry was and the presence of 2 feet of cover material.
b. Define the consistency of the waste.
c. Sample and test the waste for chemicals of concern, which may deem the waste as hazardous.
d. Install monitoring wells to define the groundwater gradient and sample and test the groundwater.

The following information is presented to document the findings based on the site evaluation conducted by SVEI:

A. The former quarry was filled with miscellaneous fill materials consisting of foundry sands, slag, construction debris, automotive parts, soils, and other municipal waste.
B. After the disposal activity was stopped by EPA in 1984, part of the former quarry was backfilled with clean soils, limestone or shale derived material. The documentation was presented above.
C. Twenty two (22) soil samples collected at various locations and depths across the site indicated chemicals of concern (**COC**) related to the existing fill materials. The COC included Semi VOCs (benzo(a)pyrene and benzo(a)fluoranthene), metals (lead and nickel) and asbestos. **Refer to Table 1: Metals/Asbestos in Soil; Table 2: VOCs in Soils; Table 3: Semi-VOCs in soils; Table 4: PCBs in soils.**
D. The groundwater samples collected from four (4) wells during two (2) sampling events indicated no presence of contaminants above the medium specific concentration levels. **Refer to Table 5: VOCs in Water, Table 6: Semi-VOCs in Water; Table 7: Metals/Asbestos in water and Table 8: Pesticides in water.**
E. The Manheim Borough residents are supplied with water from two (2) municipal wells located approximately 1.5 miles south of the site.
F. Approximately 1/3 of the property consists of undisturbed/virgin ground, which is located at the southern part of the site (Area A); Refer to **Subsurface Investigation Plan** included with this report. The transition between the

disturbed/undisturbed areas is abrupt. The northern side of the site also consists of virgin (undisturbed) subsurface conditions.

G. The deepest part of the quarry is approximately 1.6 acres in area (as shown in **Subsurface Investigation Plan)** includes miscellaneous fill material of up to 23 feet deep. The miscellaneous fill material is saturated with water starting at approximately 5 feet below the surface. The bottom of the quarry consists of 2 to 4 feet of clayey soil above the weathered limestone. Most likely these soils are related to the limestone overburden soils. Clayey soils were encountered around the entire area of the quarry, indicating that the miscellaneous fill material in the former quarry is encapsulated. The clayey soils, greatly limit the migration of the miscellaneous fill material leachate COC. Part of the top area of the former quarry was not covered with a protective soil cover.

H. The shallow part of the former quarry (Area C), located at the western side of the site, includes miscellaneous fill material ranging from 4 to 12 feet in depth, and is covered with limestone and shale derived soils up to 10 feet in thickness. The area is located at higher elevations than the other parts of the quarry and the miscellaneous material is shallower than the deep part of the quarry.

SOIL SAMPLES

The test analytical results for the soil samples (**1: Metals/Asbestos in Soil; Table 2: VOCs in Soils; Table 3: Semi-VOCs in soils; Table 4: PCBs in soils)** indicated the presence of (Benzo(a)pyrene and Benzo(b)fluranthene - Semi-VOCs), metals (nickel and lead) and asbestos. These contaminants affect human health through ingestion and inhalation.

The **Semi-VOCs** concentrations range from 3,000 ppb to 32,000 ppb at the soil sampling locations. The concentrations of **Semi-VOCs** are above 3,900 ppb at depths ranging from 5 feet to 12 feet and are below 3,900 ppb at depths between 1 foot to 5 feet. This may be an indication that the concentrations of COC were affected by exposure to the elements, weathering and washing. Benzo(a)pyrene exceeds the medium specific concentration for residential direct contact of 2,500 ppb at thirteen (13) locations (refer to Subsurface Investigation Plan showing these locations). However, these concentrations are significantly below the residential generic value of 46,000 ppb.

Benzo(b)fluranthene exceeds the medium specific concentration of 25,000 ppb at one location; however, this concentration is significantly below the residential generic value of 120,000 ppb.

The metals concentrations range from 11,300 ppm to 62,800 ppm where encountered (refer to Subsurface Investigation Plan) at depths ranging from 4 feet to 10 feet (lead) and 1 foot to 5 feet (nickel). Both metals exceed the medium specific concentration for residential direct contact and residential generic value.

Asbestos containing materials (ACM) where encountered at depths ranging from 5 feet to 10 feet below grade, however, no ACM was encountered above the 5 feet depth.

GROUNDWATER SAMPLES

The groundwater sampling and testing indicated the presence of some COC (Semi-VOCs and metals) as shown in **Table 5: VOCs in Water, Table 6: Semi-VOCs in Water; Table 7: Metals/Asbestos in water and Table 8: Pesticides.** However, none of the COC, encountered in the groundwater, are above the health based MSCs.

Following the soil and groundwater testing, which indicated that the only pathway for the quarry products to affect the human life is through direct contact, approximately 2.5 feet of clayey soil material was placed over the quarry area where the investigation determined that the minimum 2 feet of soil cover was not present.

Based on the results of the former Gibble's Quarry environmental evaluation, which included soil and groundwater sampling and testing, the property does not present a significant threat to the public health and the environment. The site can be used for development for diverse constructions (with some restrictions in the areas where COC are present in concentrations above the MSCs). Parking lots, buildings and in general covered surfaces will provide an increased level of protection for the subgrade.

SVEI has prepared the following Final Report for the TCS FAMILY ENTERPRISES INC, owner of the former Gibble's Quarry, located in Borough of Manheim, Lancaster County, Pennsylvania. The report, along with the supporting documentation contained within, demonstrates that the soil and groundwater quality are of no threat to public health or the environment.

REMEDIATOR

Contact Person: Thomas & Brian Swift

Title: Property Owner

Phone number: (717) 299 – 6631

Company Name: TCS Enterprises, Inc

Address: 2238 Robert Fulton Highway,

Peach Bottom, PA 17563

PROPERTY OWNER

Contact Person: Thomas & Brian Swift

Title: Property Owner

Phone number: (717) 299 – 6631

Company Name: TCS Enterprises, Inc

Address: 2238 Robert Fulton Highway,

Peach Bottom, PA 17563

CONSULTANT

Contact person: Florin Carjan, P.E.

Title: Consultant

Phone Number: (610) 921-9221

Company Name: Schuylkill Valley Engineering Inc.

Address: 160 Water Street
Reading, PA 19605

1.0 INTRODUCTION

1.1 Purpose

The purpose of this Remedial Investigation Summary (**RIS**) report prepared by Schuylkill Valley Engineering, Inc. (**SVEI**), under contract with TCS FAMILY ENTERPRISES, INC (**CLIENT**) is to summarize the environmental evaluation of the Gibble's Quarry located in Manheim Borough, Lancaster County, Pennsylvania. Client purchased the Gibble's Quarry property at a Sheriff Tax sale in November 2002. Due to existing information about illegal dumping of hazardous and non-hazardous materials at this property, as indicated by the NUS Report, the Pennsylvania Department of Environmental Protection (PADEP) directed the Client to develop an investigative work plan to assess the site's environmental conditions.

The request was presented in letter dated December 2, 2002 from PADEP, through Mr. Richard Morgan, Supervisor of Hazardous Site Cleanup Section. This investigation was to determine if the site presented a potential or actual threat to the public health and the environment. However, the Client intended to use the findings of this investigation and subsequent remedial activities (covering the area of concern with clean fill) to obtain a release of liability.

As per PADEP request, SVEI performed the following operations:

a. Subsurface investigation of the former quarry to define the area where the actual quarry was and the presence of 2 feet of cover material.

b. Define the consistency of the waste.

c. Sample and test the waste for chemicals of concern, which may deem the waste as hazardous.

d. Install monitoring wells to define the groundwater gradient and sample and test

the groundwater.

The summary presented herein is based on the investigation plan that was conducted in phases with the cooperation and supervision of PADEP.

1.2 Scope

The scope of work for this evaluation was performed in accordance with SVEI's proposal 1062G1P1, dated June 16, 2003 and the authorization to proceed received on June 24, 2003. The initial scope of work was supplemented with progress reports 1062G1PR1, dated July 16, 2003, 1062G1PR2, dated November 16, 2003, 1062G1PR3, dated March 18, 2004 and 1062G1PR4, dated October 7, 2004 and October 25, 2005 in order to complement the site's findings.

At a later date, PADEP requested that the property be treated in accordance with the Land Recycling and Environmental Remediation Act (Act 2) in order to obtain a release of liability.

Various sources of information were used to collect data concerning the quarry and surrounding area, such as the USDA Soil Survey of Lancaster County, Pennsylvania, the Historical Society of Lancaster County, Geological Maps of the Manheim Quadrangle, Pennsylvania Department of Environmental Protection (PADEP) reports and local residents. The local residents provided information about the approximate size, depth and the consistency of fill material in the quarry.

2.0 SITE DESCRIPTION

The following sections include a summary of the available information about the site, the results of the subsurface investigation, soil and ground water sampling and testing, conclusions and recommendations regarding this property.

2.1 Site Location

The former limestone quarry is located east of Main Street (Route 72), towards the northern part of Manheim Borough.

The project site (Gibble's Quarry) is a 4.36 acre property of which approximately 2.5 acres were quarried for construction stone. The former limestone quarry is located at the northern end of Hazel Street and east of East Colebrook Road, in the Borough of Manheim, Lancaster County, Pennsylvania (Refer to Figure 1 – Site Topography). The site is located within the Manheim 7.5 minute series topographic map, United States Geological Survey (U.S.G.S.), with coordinates of 40^0 10' 8" north latitude and 76^0 23' 52" west longitude. The site address is 299 North Hazel Street, Manheim, Pennsylvania, 17545. The site is identified as tax parcel #400-41185-0-0000 and the deed number is 05166204. The site is surrounded by old and new residential developments. The more recent residential developments are located along the northern and eastern boundaries of the site and older developments at the southern and western part of the site. Site access is through North Hazel Street, which ends at the southern boundary and East Colebrook Street, which ends at the western boundary of the site. Based on discussions with local residents, East Colebrook Street was the entranceway for the trucks dumping the waste in the former quarry. An additional exit was at the eastern end of the quarry, towards the Chickies Creek. Some residents indicated that a constantly flowing spring, was located at the northeastern corner of the property; however, no evidence of this spring currently exists.

2.2 Physical Site Characteristics

2.2.1 Site Topography

The topography of the site consists of a gentle to moderate grade sloping in a southeastern direction. Some outcropping limestone was noted at the northwestern part of the site, where the soil mantle is thin. The surface of the site slopes from a topographical high of approximately 434.0 feet at the northwestern corner of the site to 414.77 feet at the southeastern corner of the property.

2.2.2 Site Geology

The Gibble's Quarry site lies within the Conestoga Valley Section of the Piedmont Physiographic Province, approximately 2.5 miles south of the Triassic Lowland Section of the Piedmont Physiographic Province. The Conestoga Valley Section is underlain mainly by shale and carbonate rocks with a typical gently rolling topography. The areas underlain by carbonate rocks generally stand 300 feet lower than the surrounding noncarbonated areas.

The bedrock beneath the site is mapped as the Ordovician age **Epler Formation.** The **Epler Formation** is a member of the Beekmantown Group and consists of very finely crystalline, light gray limestone interbedded with gray dolomite. Locally, coarsely crystalline limestone lenses may be present. The statigraphic thickness of the Epler Formation is approximately 1,000 feet.

The Ordovician aged **Stonehenge Formation,** also a member of the Beekmantown Group. crops out approximately 0.5 mile south of the site, stratigraphically underlying the Epler Formation. The Stonehenge Formation consists of gray, finely crystalline limestone containing dark gray silty laminations and numerous conglomerate beds. The maximum stratigraphic thickness of the Stonehenge Formation is 1,500 feet.

The site geology is indicated on a photocopy of the Atlas of Preliminary Geologic Quadrangle Maps of Pennsylvania, Manheim Quadrangle, 7.5 Minute Series, included as Figure II.

2.2.3 Site Soils

Based on the subsurface investigation performed approximately one third of the property, located at the southern part of the site, consists of virgin soils. Virgin soil is surrounding the former quarry, but the width of them is estimated as ranging from 10 to 20 feet. The virgin soils are most likely Bedington silt loam. This soil type, as described by the USDA Soil Survey of Lancaster County, is gently sloping, deep, well drained and formed in weathered materials from limestone and shale.

The remaining 2/3 of the site contains the former quarry, where the original soils were removed and backfilled with miscellaneous fill material.

The site soils are indicated on a photocopy of the USDA Soil Survey of Lancaster County, Pennsylvania, page 27, included as Figure III.

2.2.4 Site Groundwater

Topographically, the site is located between Rife Run and Chickies Creek. Rife Run flows in a southern direction approximately ¾ of a mile west of the subject site. Chickies Creek flows in a southern direction approximately ½ mile east of the subject site. The two streams converge approximately one mile southwest of the site. According to the Manheim Quadrangle topographic map, the preferred direction of the stormwater flow at the site is in a southeast direction towards Chickies Creek. Shallow groundwater beneath the site is expected to flow southeast toward Chickies Creek, perpendicular to topographic contours.

Groundwater within the Epler and Stonehenge Formations is mainly stored in and transmitted through secondary porosity due to fractures and fractures enlarged by solution. Solution channels produce a secondary porosity of moderate to high magnitude. As such groundwater may not flow in the direction that one would expect based upon the topography. It is possible that any solution channels that may be present below grade, which could divert groundwater flow in some other direction, can influence groundwater flow. However, it is expected that this influence would only be localized and that regionally the groundwater flow ultimately will tend to move toward the Chickies Creek or at least the confluence of Chickies Creek and Rife Run. Based on the onsite monitoring wells, the groundwater does flow in the direction one would expect based upon the area topography. Reported yields within these formations range from 1 to 600 gallons per minute (gpm) with a median of 30 gpm.

Groundwater within the Cocalico Formation, which is located immediately north of the site, is stored and transmitted within fractures also. Reported well yields ranging from 1 to 100 gpm with a median of 20 gpm.

According to the information provided in the NUS report, representative wells within 1 mile of the site range from 42 to 312 feet deep and are open-hole constructed. The static water level within these wells ranges from 30 to 40 feet below the surface. According to the NUS report, Mr. Gibble indicated that the deepest section of the quarry was approximately 40 feet deep; however, this information could not be substantiated during the site subsurface investigation. In addition, it is not known whether the water table was exposed prior to deposition of wastes.

Five (5) shallow monitoring wells (less than 60 feet in depth) have been installed at the site. Based on groundwater elevations recorded during the sampling events, it appears that the groundwater flow direction across the site is in a southeasterly direction.

2.3 Site Ownership

The Gibble's Quarry property was purchased by the Client at a Sheriff Tax sale in November 2002.

2.4 Site Use History

According to the information provided in the Non-Sampling Site Reconnaissance Summary Report for Gibble's Quarry, prepared under TDD NO F3-8802-19, EPA NO PA-689, Contract No 68-01-7346, prepared for Hazardous Site Control Division, US Environmental Protection Agency on May 13, 1988 by NUS Corporation, Superfund Division, the site was a privately owned limestone quarry purchased by Mr. Rufus Gibble, the former owner, in the 1940s. The NUS report indicated that Mr. Gibble used the quarry to dispose of municipal, residual and industrial wastes from 1955 through the 1980's. In 1972, flood debris from Hurricane Agnes was deposited at the site. The quarry was never lined and Mr. Gibble had never applied or held a solid waste disposal permit, and had no groundwater monitoring wells.

3.0 SITE ENVIRONMENTAL HISTORY

According to the information provided in the Non-Sampling Site Reconnaissance Summary Report for Gibble's Quarry, prepared under TDD NO F3-8802-19, EPA NO PA-689, Contract No 68-01-7346, prepared for Hazardous Site Control Division, US Environmental Protection Agency on May 13, 1988 by NUS Corporation, Superfund Division, two local manufacturing industries had a major contribution in the disposal of

the residual and hazardous wastes. Raybestos-Manhattan, Inc. also known as Raymark Industries disposed asbestos waste and sludge in the quarry from 1968 through 1973. The Fuller Company disposed foundry sands, dust, and slag in the quarry from 1971 through 1977. In addition, a large but unknown amount of waste, which was deposited at the site, consists of municipal waste, demolition and flood debris.

The site was identified through Superfund Notifications and was inspected in June 1984 by the Pennsylvania Department of Environmental Resources (PADER). At that time, the NUS report indicated that Mr. Gibble no longer accepted hazardous wastes, but only municipal wastes, such as car carpets, tires, and automotive parts, dumped by local industries or individuals. In June 1984, the PADER ordered the dumping to stop and the filled quarry area to be covered with a soil cover of at least 2 feet thick. Mr. Gibble complied and covered part of the quarry with soil. Maintenance of the site included periodic grass mowing.

3.1 NUS REPORT SAMPLING RESULTS.

Some preliminary fieldwork was performed by the US Environmental Protection Agency, which found that there are several locations on the site where foundry sand is present immediately at the surface. In addition, limited shallow sampling and testing of the waste found concentrations of two substances that exceed direct contact regulatory limits for a residential (0-15 feet) area. Benzo(a)pyrene equals or exceeds the medium specific concentration of 2,500 ppb at two locations (2,500 and 3,900 ppb) and nickel exceeds the medium specific concentration of 4,400 ppb in one location (4,590 ppb). If the non-residential standards are used, none of the sample results exceeded regulatory limits in a total of five (5) soil samples, that where obtained from within the fill

4.0 REMEDIAL ACTION PLAN

The remediation action plan (RAP) for this site was prepared in accordance with the PADEP requirements and the site's specific conditions.

As discussed with PADEP, a clean up procedure, which will physically remove the entire quantity of miscellaneous fill materials and dispose them properly to an approved disposal facility, is unrealistic due to presence of a considerable volume of miscellaneous fill material (above 10,000,000 tons) and water. Presence of contaminants such as asbestos, lead and nickel will further complicate any complete removal attempt due to the hazardous nature of the waste and costly removal/disposal procedures.

The scope of work for the former quarry evaluation included sampling of the surface and subsurface soils to determine the presence and contaminants levels, installation of monitoring wells to determine the condition of the groundwater outside the quarry, identification of possible receptors and methods of encapsulation/remediation of the site's contaminated material.

4.1 SUMMARY OF SUBSURFACE INVESTIGATION

The subsurface investigation of the site for soils evaluation was performed during three (3) phases. On July 9, 2003 **(Phase I)** test pits were excavated with a backhoe provided by Krater Groundwork. During this phase the southern extent of the quarry was found and a disturbed/undisturbed line was determined. The northern extent of the quarry could not be established with the backhoe due to the presence of oversized rock fragments and construction debris.

On July 19, 2003 **(Phase II)** SVEI's subcontractor, Corcoran Drilling investigated the northern and central part of the quarry. On July 20, 2003, **(Phase III)** (after previous

approval from the Client) SVEI mobilized a trackhoe to determine the vertical and horizontal extent of the northern and western part of the quarry.

The following sections describe the soil subsurface investigation performed and summarize SVEI's findings and conclusions.

4.2 SUBSURFACE INVESTIGATION

The subsurface investigation for this project was performed in three (3) distinct phases as indicated above. The purpose of these investigations was to ascertain the limits of the quarry and the extent of the fill within the quarry. The **First phase**, performed with a backhoe, consisted of twenty-three (23) test pits excavated to a maximum depth of 13 feet below the existing grades. The test pits completed with the backhoe are labeled P1 through P23. A summary of the test pit findings is presented in **Table S: Summary of the Subsurface Study**. The locations of the backhoe test pits are identified on the **Subsurface Investigation Plan.**

On July 19, 2003 (**Phase II**) a subsurface investigation was performed with a truck mounted drill rig. A total of nineteen (19) locations were evaluated to assess the vertical extent of the quarry. The test locations as indicated on the Subsurface Investigation Plan. The boring locations were established based on a grid marked in the field. However, modifications to the drilling program were made based on the subsurface conditions encountered.

Phase II of the subsurface investigation was performed using 6 inch solid augers with soil sampling performed with a 2-inch split spoon sampler driven into the ground by a 140-lb hammer dropped 30 inches. The test borings performed with the drill rig are labeled as A1 through A19. A summary of the test boring findings is presented in **Table**

S: Summary of the Subsurface Study. Locations of the test borings are indicated on the **Subsurface Investigation Plan.**

Phase III of the investigation was initiated to complement the subgrade investigation results obtained with the backhoe and drilling rig and determine more precisely the quarry limits. The Open-File Report 9001, dated 1990, by W. E. Kochanov entitled "Sinkholes and Karst Related Features of Lancaster County, Pennsylvania", Manheim Quadrangle, dated 1955, photorevized on 1969 and 1975, indicated the quarry location immediately east of the intersection of North Hazel Road and East Colebrook Street. This information revealed the possibility of minor disturbance at the northern part of the quarry with minimal quantities of waste. SVEI coordinated with an excavation company, (Irish Creek Excavation Inc) to perform a subsurface investigation at the northern part of the site. The additional investigative work consisted of eleven (11) test pits advanced to a maximum depth of 20 feet below the existing grades. The locations of the test pits were established by SVEI's personnel using the available information from the previous phases of subgrade investigations. The test pits performed with the trackhoe are labeled as Pa through Pk. A summary of the test pit findings is presented in **Table S: Summary of the Subsurface Study**. The locations of the trackhoe test pits are indicated on the **Subsurface Investigation Plan.**

4.3 SUBSURFACE INVESTIGATION RESULTS

Based on the subsurface investigation performed at the site, the property can be subdivided in three sections. They are labeled for clarity as **"Area A"**, **"Area B"**, and **"Area C"** and are shown on the **Subsurface Investigation Plan**

"Area A" is the form of a trapezoid and is located at the southern part of the site. The width of **area "A"** is approximately 180 feet along the western boundary of the site,

however, is approximately 70 feet at the eastern boundary. This area is approximately 1.3 acres in size. The subgrade of this area is virgin (undisturbed) and consists of limestone derived soils to an approximate depth of 13 feet. Below this depth limestone bedrock was encountered. The transition between the virgin area and the **"Area B"** of the quarry is abrupt.

"Area B" represents the footprint of the former quarry, which includes more than 15 feet of miscellaneous fill material. Based on SVEI's evaluation, the deepest part of the quarry is approximately 28 feet. The foundry sand was found to be up to 23 feet thick in the central part of the quarry. The water table was encountered at approximately 9 feet below grade at the western side but is as shallow as 5.5 feet at the eastern side of the quarry. This part of the quarry is filled with household waste, construction debris and foundry sand as encountered at the investigation locations. Most of this area was not covered with a protective soil layer and foundry sand was noted immediately under the grass roots layer. Toward East Colebrook Street the consistency of the waste is mostly soils and rock, trace of foundry sand with crushed stone, probably placed to secure the entrance for the waste dumping trucks. The southwestern part of this area encountered construction debris and a small area of incinerator ash. Part of **"Area B"** is covered with approximately 4 to 10 feet thick of limestone and shale derived soils. **Area "B"** is approximately 1.6 acres in size.

"Area C" is a transition area between the deep quarry and the virgin area of the site and ranges between 10 to 22 feet deep at the evaluation locations. The thickness of the miscellaneous fill material ranges from 4 to 12 feet and the limestone derived soils covering the area are up to 10 feet thick. Most of the clean fill material covering the site

consists of limestone derived soils from the nearby site developments. This area is approximately 1.4 acres.

Around the northern and eastern boundary of the site, a virgin area of up to 20 feet wide was identified. This area is mostly grass covered, with some brush, trees and landscaped soil mounds.

5.0 SUBSURFACE SOIL SAMPLING

The soil sampling program at this property was performed in four (4) stages. The results of the soil sampling and laboratory testing for each stage were evaluated to determine the locations and testing parameters for the next stage.

The initial stage consisted of soil sampling at six (6) locations in the deep part of the quarry and was performed on July 19, 2003. The next sampling and testing stage was performed on September 11, 2003, followed by the third stage, which was performed on November 26, 2003. The last soil sampling stage was performed on May 15, 2004.

Soil sampling was performed with an auger drill rig using a 2-inch split spoon sampler. The drilling and sampling equipment was decontaminated between test locations using a steam pressure washer to prevent cross contamination.

The second stage consisted of soil sampling at ten (10) locations located across the site. This sampling phase was performed to extend the area of evaluation to the northern part of the site and adjacent to the phase I area, which encountered contamination above the allowable regulatory levels. The third stage included four locations, towards the northern and southern portions of the quarry. The fourth stage included two locations next to areas that had the presence of compounds above the allowable regulatory limits.

The locations of the soil sampling and depth for each phase were established with Mr. Steve Shank of PADEP, based on the test results from the previous soil sampling and testing phase.

5.1 SOIL SAMPLES COLLECTION

The following is a description of the locations and depth of sampling for each soil sample.

Soil sample S1 was collected between 8 to 12 feet below existing grades at the approximate border between the shallow and deep parts of the quarry. At this location approximately 7 feet of a mixture of soil and rock is covering the foundry sand. The thickness of foundry sand at this location is approximately 14 feet. Below the foundry sand approximately 3.5 feet of silty clay material was encountered. Auger refusal was encountered at 24.9 feet below the existing grade.

Soil sample S2 was collected at the northern side of the deep section of the quarry between 5 to 10 feet in depth. The thickness of foundry sand is approximately 22 feet with approximately 7 feet of mottled silty clay soil beneath. Auger refusal, an indication of rock was encountered at 28.8 feet below the existing grade.

Soil sample S3 was collected at the northern part of the deep quarry, which had no soil cover, at a depth of between 5 to 10 feet. The thickness of foundry sand is approximately 20 feet with minimal silty clay soils beneath. Auger refusal was encountered at 20.3 feet below the existing grade.

Soil sample S4 was collected at the southern part of the deep quarry, which has no soil cover, at a depth of between 5 to 10 feet. The thickness of foundry sand is approximately 22 feet with approximately 2.5 feet of mottled silty clay soils beneath. Auger refusal was encountered at approximately 24.3 feet below the existing grade.

Soil sample S5 was collected at the southern part of the deep quarry, which had no soil cover at a depth of between 5 to 10 feet. The thickness of foundry sand is approximately 16 feet with minimal silty clay soils beneath.

Soil sample S6 was collected between 6 to 10 feet below existing grade at the border line between the covered and uncovered areas, at the southwestern part of the deep quarry. At this location approximately 6 feet of a mixture of soil and rock was encountered. The thickness of foundry sand is approximately 11 feet. Auger refusal was encountered at approximately 18.5 feet below existing grade with approximately 2 feet of soil beneath the foundry sand.

Soil sample S7 was collected between 1 to 5 feet below existing grade at the border line between the virgin soil and shallow part of the quarry. At this location approximately 5 feet of a mixture of foundry sand and miscellaneous debris was encountered. Below this depth virgin soils, consisting of mottled fine sand and silty clay were encountered.

Soil sample S8 was collected between 4 to 8 feet below existing grade at the border line between the shallow and deep part of the quarry, which had no soil cover. At this location approximately 7 feet of a mixture of soil and rock, was encountered. The thickness of foundry sand is approximately 8 feet; however, it is mixed with numerous miscellaneous debris. Below the foundry sand approximately 2 feet of silty clay material was encountered. Auger refusal was encountered at approximately 17.5 feet below the existing grade.

Soil sample S9 was collected between 4 to 6 feet below existing grade at the northern part of the shallow quarry. At this location approximately 4 feet of a mixture of soil and rock was encountered. The thickness of foundry sand is approximately 4 feet; however it

is once again mixed with numerous miscellaneous debris. Below the foundry sand approximately 2 feet of silty clay material and rock was encountered. Auger refusal was encountered at 11.5 feet below the existing grade.

Soil sample S10 was collected between 4 to 8 feet below existing grade at northern part of the shallow quarry. At this location approximately 4 feet of a mixture of soil and rock was encountered. The thickness of foundry sand is approximately 6 feet and again is mixed with numerous miscellaneous debris. Below the foundry sand approximately 3 feet of silty clay material and rock was encountered. Auger refusal was encountered at approximately 12.5 feet below the existing grade.

Soil sample S11 was collected between 5 to 10 feet below existing grades at the northwestern corner of the property and in the shallow part of the quarry. At this location approximately 5 feet of a mixture of soil and rock was encountered. The thickness of foundry sand is approximately 6 feet. Below the foundry sand approximately 2 feet of silty clay material was encountered. Auger refusal was at 12.5 feet below the existing grade.

Soil sample S12 was collected between 1 to 5 feet below existing grade at the western part of the quarry. At this location approximately 2 feet of a mixture of soil and rock, limestone derived materials, were encountered. The thickness of the foundry sand is approximately 6 feet; however we found it to be mixed with numerous miscellaneous debris and crushed stone. Below the foundry sand approximately 4 feet of silty clay material and topsoil was encountered. Virgin soil was encountered at a depth of 12 feet below the existing grades.

Soil sample S13 was collected between 1 to 5 feet below existing grade at the border line between the shallow and deep part of the uncovered quarry located in the western

area. At this location approximately 2 feet of a mixture of soil and rock was encountered. The thickness of foundry sand is approximately 10 feet. Below the foundry sand, approximately 3 feet of mottled silty clay material was encountered. Auger refusal was at 17.5 feet below the existing grade.

Soil samples S14 and S15 were collected in the vicinity of the Soil sample S5, which is located in the uncovered deep part of the quarry. Depth of sampling was 5 to 10 feet below the existing grade. Thickness of the foundry sand is approximately 18 feet. Auger refusal was encountered at an average depth of 21 feet below the existing grade.

Soil sample S16 was performed at the borderline between the deep and shallow part of the quarry. An initial location encountered rock at 6 feet below existing grade. A new location, 10 feet west from the previous one, was used to sample at a depth of between 5 to 10 feet. Very wet conditions were encountered from 8 feet to auger refusal at 24 feet depth.

Soil sample S17 was collected between 1 to 5 feet below existing grade at the border line between the shallow and deep, uncovered part of the quarry. At this location approximately 2 feet of a mixture of soil and rock was encountered. The thickness of foundry sand is approximately 11 feet; however, it is mixed with numerous miscellaneous debris. Below the foundry sand approximately 3 feet of silty clay material was encountered. Auger refusal was encountered at 18.5 feet below the existing grade.

Soil sample S18 was collected between 1 to 5 feet below existing grade inside the deep, uncovered part of the quarry on the northern side. The thickness of foundry sand is approximately 17 feet; however, some miscellaneous debris was mixed with the foundry sand. Below the foundry sand approximately 4 feet of fine sand and silty clay material was encountered. Auger refusal was at 21.5 feet below the existing grade.

Soil sample S19 was collected between 1 to 5 feet below existing grade at the border line between the shallow and deep part of the quarry. At this location approximately 2.5 feet of a mixture of soil and rock, limestone derived materials, was encountered. The thickness of foundry sand is approximately 3 feet; however, it is mixed with numerous miscellaneous debris. Below the foundry sand approximately 4 feet of silty clay material was encountered. Auger refusal was encountered at 10.5 feet below the existing grade.

Soil sample S20 was collected between 1 to 5 feet below existing grade at the border line between the shallow and deep part of the quarry on the southern side. At this location minimal soil coverage was encountered. The thickness of foundry sand is approximately 9 feet; however, it is mixed with numerous miscellaneous debris. Below the foundry sand approximately 3 feet of silty clay material was encountered. Auger refusal was at 16.5 feet below the existing grade.

Soil sample S21 and **S22** were collected at the northern part of the site in the area, which has soil cover, between 1 to 5 feet below existing grade and no waste was encountered at this locations.

5.2 ANALYTICAL RESULTS DISCUSSION

Based on the description of the site subgrade materials, and as requested by PADEP, SVEI analyzed the selected soil samples for the following chemical parameters.

- Volatile organic compounds (EPA method 8260B),
- Semi – Volatile Organic Compounds (EPA Method 8270C),
- Priority Pollutant Metals (EPA Methods 6010B/7000A),
- Polychlorinated biphenyls (EPA method 8082), and,
- Asbestos (EPA Method 600-R93).

The soil samples were collected and were submitted to a PADEP certified laboratory for analysis. Copies of the analytical test results and the soil sample chain of custody forms are included in **Appendix "B"** of this report.

The following compounds exceed the medium specific concentrations levels for residential, direct contact.

Sample S1: (8'-12' depth) Benzo(a)pyrene 10,000 ppb. Less than 1% asbestos.

Sample S2: (5'-10' depth) Lead 11,300 ppm 25% asbestos.

Sample S3: (5'-10' depth) Benzo(a)pyrene 5,000 ppb 1% asbestos.

Sample S4: (5'-10' depth) Benzo(a)pyrene 32,000 ppb 1% asbestos.

Benzo(b)fluoranthene 31,000 ppb.

Sample S5: (5'-10' depth) Benzo(a)pyrene 32,000 ppb Less than 1% asbestos

Sample S6: (6'-10' depth) Benzo(a)pyrene 32,000 ppb Less than 1% asbestos

Sample S9: (4'-6' deep) lead 62,800 ppm 32% asbestos

Sample S10: (4'-8' deep) Benzo(a)pyrene 3,900 ppb

Sample S11: (5'-8' deep) Benzo(a)pyrene 6,800 ppb Less than 1% asbestos.

Sample S12: (1'-5' deep) Benzo(a)pyrene 3,000 ppb Less than 1% asbestos

Sample S13: (1'-5' deep) Benzo(a)pyrene 3,000 ppb

Nickel 11,400 ppm

Sample S14: (5'-10' deep) Benzo(a)pyrene 8,700 ppb

Sample S15: (5'-10' deep) Benzo(a)pyrene 7,000 ppb

Sample S16: (5'-10' deep) Benzo(a)pyrene 16,000 ppb

Sample S17: (1'-5' deep) Less than 1% asbestos

Sample S18: (1'-5' deep) Less than 1% asbestos

Sample S19: (1'-5' deep) Less than 1% asbestos

Sample S20: (1'-5' deep) Less than 1% asbestos

Sample S21: (1'-5' deep) Benzo(a)pyrene 3,900 ppb

Other substances were also encountered in the composition of the fill material, however, they are below the direct contact regulatory limits for a residential (0-15 feet) area.

6.0 GROUNDWATER INVESTIGATION

As indicated by PADEP, SVEI attempted to install four (4) monitoring wells in order to determine if the miscellaneous fill material located in the quarry has any impact on the local groundwater quality. Based on the existing surface topography and the location of Chickes Creek, approximately ½ mile east from the site, it was assumed that the direction of the groundwater flow would be in a southern to southeastern direction.

The monitoring wells were installed using an air rotary drill rig. SVEI's personnel established the monitoring well locations and performed logging of the borehole profiles. The wells were drilled to an average depth of 50 feet and until the first water bearing zone was encountered. Each well was constructed with two-inch diameter PVC well screen and riser including twenty feet of 0.020-inch slot well screen. The borehole was packed with filter sand around the screened interval to keep fine-grained sediment out of the well. A two-foot layer of bentonite topped with grout to grade was placed above the sand to prevent infiltration of surface water. The wells were finished above grade and covered by an 8 inch protective well casing. The top of each well was locked to prevent unauthorized entry into the well.

Installation of well W4 was attempted at three locations at the northeastern part of the site without success. At a later date, SVEI hired a well contractor, who installed monitoring well 4.1. However, although during installation, the well appeared to have

adequate yield, no sampling was possible at a later date as groundwater recovery was extremely slow, probably due to well collapse. SVEI attempted to clean the well, however, our attempt was not successful. On April 23, 2004, well 4.2 was installed at approximately 80 feet from the initial location at the northern part of the site.

After completing the monitoring well installations, development of the wells was performed by airlift surging to remove fine-grained sediment from the wells and the surrounding area. Development water for each well was stored in 55-gallon drums until receipt of the purge water analytical results.

Relative well casing elevations were determined for each well location. The reference elevations were based on the estimated site datum, a sanitary manhole located at the end of Hazel Street, of elevation 421.36 feet.

This elevation of the existing sewer rim manhole located east of North Hazel Street end, is marked on the Existing Conditions Plan, prepared for TCS Family Enterprises Inc, Manheim Borough, Lancaster County, Pennsylvania, by Regester Associates, Inc, P.O. Box 406, Kennett Square, Pennsylvania, 19348, job number 29591, Drawing no. S-1146 dated November 16, 2006. The groundwater gradient and aquifer surface elevations were determined using the relative well casing elevations and the depth to the static water level in each well.

The groundwater samples were collected during two (2) events. On November 6, 2003, three (3) wells were purged by removing five (5) well volumes of water using a submersible pump to obtain representative groundwater samples. The pumping equipment was decontaminated with a steam cleaner, using Alconox (biodegradable soap) and distilled water prior to purging each well. After allowing the water to recover,

to within 5 feet of static level, a ground water sample was obtained using a dedicated disposable sampling bailer.

The purge water was also placed in 55-gallon drums. The water was discharged at the ground surface after the analytical results were received from the laboratory, which indicated no presence contaminants above the medium specific concentration for drinking water.

The second event of sampling and testing of groundwater was performed on May 11, 2004 and May 12, 2004 after a new well was installed west of well location 4.1. The well 4.2 was installed at approximately 80 feet from the initial location on April 23, 2004. The well preparation and sampling was performed using the same procedure as during the first sampling event.

The water samples collected during the evaluation were placed in new laboratory issued sample containers, which were properly labeled and documented with a chain of custody form. Containers were immediately placed in a cooler with ice packs for transport to a PADEP certified laboratory. Each sample was analyzed for the following parameters:

- Volatile organic compounds (EPA method 8260B),
- Semi – Volatile Organic Compounds (EPA Method 8270C),
- Polychlorinated biphenyls (EPA method 8082),
- Priority Pollutant Metals, dissolved (EPA Methods 6010B/7000A), and
- Asbestos (EPA Method 600-R93).

Based on the ground water information collected from the wells, the water flows in a southeasterly direction. The highest elevation of the groundwater was encountered at

Well 3 (409.41 feet) and the lowest at Well 1 (397.40 feet). Refer to Table W: Well Construction Details for additional information.

The analytical test results of groundwater samples collected from the wells indicate no levels above the medium specific concentration for drinking water.

6.1 SENSITIVE RECEPTORS

As indicated above, the groundwater was not contaminated or of concern since the site and surrounding properties obtain their potable water supply from the Borough publicly owned water supply wells. SVEI identified one private well located in the vicinity of the site at approximately 200 feet northeast from monitoring well 4.2. However, the owner indicated that the water is used only for filling a swimming pool and no obvious contamination was ever noted. The closest perennial surface water bodies are located 0.5 mile west of the site, Rife Run and approximately 0.75 mile east of the site Chickes Creek.

Potentially sensitive receptors were not identified at this site. This conclusion is based on no presence of contaminants above the medium specific concentration for drinking water in the groundwater, the presence of impermeable clayey soils surrounding the quarry, which greatly limits the potential migration of contaminants off site, no subsurface utilities (storm, sewer, gas), which may traverse the site and allow transport of contaminants offsite, and the fact that area residents are all on public water supply.

7.0 CONCLUSIONS

SVEI performed a soil and groundwater investigation at the former Gibble's quarry to determine if past unpermitted disposal activities have impacted soil and groundwater and present a potential or actual threat to the public health and the environment.

The following conclusions can be derived based on SVEI's investigation:

A. The information collected by SVEI indicate that the former quarry was filled with miscellaneous fill materials consisting of foundry sands, slag, construction debris, household trash, automotive parts, soils, etc.

B. After the disposal activity was stopped by EPA, part of the former quarry was filled with clean soils, limestone or shale derived.

C. Approximately 1/3 of the property consists of undisturbed/virgin ground, which is located at the southern part of the site. The transition between the disturbed/undisturbed area is abrupt

D. The deepest part of the quarry is approximately 1.6 acres and includes miscellaneous fill material of up to 28 feet deep, which is saturated with water. The bottom of the quarry consists of 2 to 4 feet of clayey soil, most likely related to the limestone overburden soils. Most part of this area was not covered with a protective soil cover.

E. The shallow part of the former quarry includes miscellaneous fill material ranging from 4 to 12 feet thick and is covered with limestone and shale derived soils up to 10 feet in depth.

F. Soil samples collected at various locations and depths across the site indicated contamination of the existing fill materials with Semi VOCs (benzo(a)pyrene and benzo(a)fluoranthene), metals (lead and nickel) and asbestos.

G. The groundwater samples collected from four (4) wells during two (2) sampling events indicated no contaminants presence above the medium specific concentration for drinking water standards.

7.1 DISCUSSION

It is obvious that compounds, above the medium specific concentration levels, are present into the composition of the former quarry miscellaneous fill material. A clean up procedure, which will physically remove the miscellaneous fill materials and dispose them properly to an approved disposal facility, is unrealistic due to presence of a high volume of miscellaneous fill material and water. Presence of contaminants such as asbestos and lead will further complicate any complete removal attempt due to the hazardous nature of the waste and costly removal/disposal procedures.

As determined during the subsurface investigation, the miscellaneous fill material in the former quarry is encapsulated in clayey soils, which do not allow migration of the miscellaneous fill material products from the quarry. The northern and southern sides consist of virgin (undisturbed) subsurface conditions. The eastern side may have been disturbed, however, during installation of well #1, located at the southeastern corner virgin conditions were encountered from the surface to the total well depth of 49.5 feet. During attempts to install well 4.1, located at the northeastern corner, clean fill material consisting of limestone derived soils was encountered to a depth of 15 feet, followed by limestone rock fragments. The western side of the site is located at higher elevations and the miscellaneous material is shallower.

The contaminants encountered during soil and groundwater sampling consists of petroleum hydrocarbon products (Semi-VOCs), metals and asbestos. Most of these contaminants present in the former quarry are compounds, which may impact human life through ingestion or inhalation only. Over the years weathering of the petroleum hydrocarbons, washing by precipitation and biochemical degradation may have

lowered the quantity of hydrocarbons present in the soil (VOCs), however, some petroleum hydrocarbon contamination is still present (Semi-VOCs).

The test results for the soil samples indicated the presence of petroleum hydrocarbons products (Benzo(a)pyrene and Benzo(b)fluranthene - Semi-VOCs), metals (nickel and lead) and asbestos. These contaminants affect human health through ingestion and inhalation.

The petroleum hydrocarbons concentrations range from 3,000 ppb to 32,000 ppb at the soil sampling locations. The concentrations of petroleum hydrocarbons are above 3,900 ppb at depths ranging from 4 feet to 12 feet and are below 3,900 ppb at depths between 1 foot to 5 feet. This is an indication that petroleum hydrocarbon products concentrations were affected by exposure to the elements, weathering and washing. These contaminants affect human health through ingestion.

Benzo(a)pyrene exceeds the medium specific concentration for residential direct contact of 2,500 ppb at thirteen (13) locations, however, they are below the residential generic value of 46,000 ppb.

Benzo(b)fluranthene exceeds the medium specific concentration of 25,000 ppb at one location, however is below the residential generic value of 120,000 ppb.

The metals concentrations range from 11,300 ppm to 62,800 ppm where encountered at depths ranging from 4 feet to 10 feet (lead) and 1 foot to 5 feet (nickel). Both metals exceed the medium specific concentration for residential direct contact and residential generic value. These contaminants affect human health through ingestion.

Asbestos containing materials (ACM) where encountered at depths ranging from 4 feet to 10 feet below grade, however, no ACM was encountered above the 5 feet depth. Asbestos affects human health through inhalation.

The groundwater sampling and testing indicated the presence of some petroleum hydrocarbons products (Semi-VOCs) and metals. None of the compounds encountered in soil, were encountered in the groundwater, with the exception of traces of lead and nickel. None of the above mentioned products, encountered in the groundwater, are above the drinking water standards.

The conditions encountered at the wells installed around the site indicate that the groundwater was not impacted and no contaminants above the drinking water standards are present. It should be mentioned that Manheim Borough residents are supplied with water from two (2) wells located approximately 1.5 miles south of the site.

8.0 REMEDIATION WORK

According to the our recommendations after discussions with PADEP representatives the Client installed up to 6.5 feet of clayey soil material over the area where our investigation showed that the minimum 2 feet of soil cover is not present. The material was placed according to the fill material placement recommendations provided by SVEI.

Based on the results of the former Gibble's Quarry environmental evaluation, which included soil and groundwater sampling and testing, and the placement of the soil cover, it is SVEI's opinion that the property does not present an imminent threat to public health or the environment. The site can be used for development for diverse construction. Parking lots, buildings and in general covered surfaces will provide an increased level of protection for the subgrade.

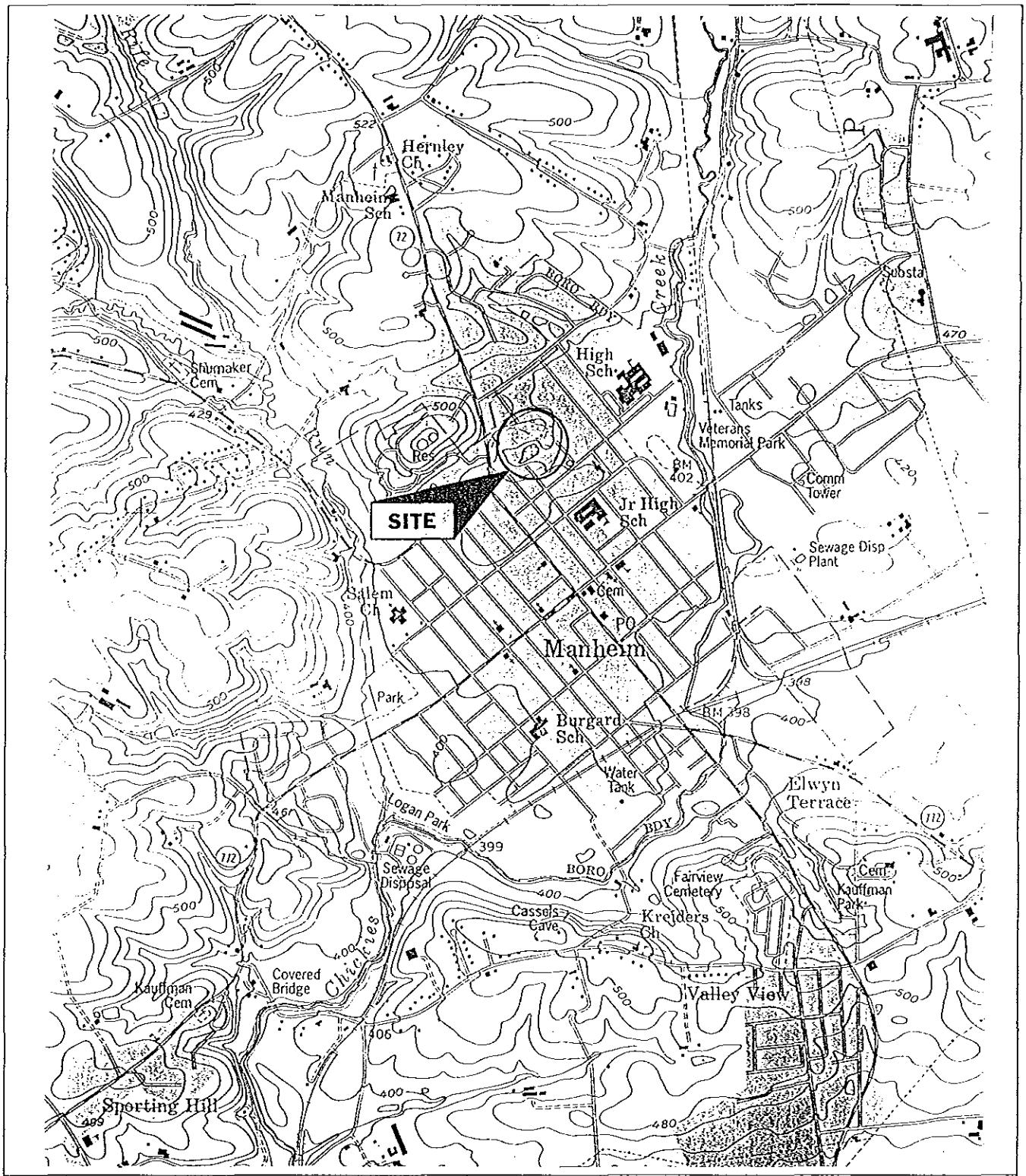
➢ *GIBBLE'S QUARRY*

SVEI has prepared the Remedial Investigation Summary Report for the TCS FAMILY ENTERPRISES INC, owner of the former Gibble's Quarry, located in the Borough of Manheim, Lancaster County, Pennsylvania. The report, along with the supporting documentation contained within, demonstrates that the soil and groundwater quality are of no threat for the public health or the environment.

Geology and Groundwater References

1. Pennsylvania Department of Environmental Resources, Bureau of Topographic and Geologic Survey. Physiographic Provinces of Pennsylvania. Map 13, Third Printing, 1979.
2. Pennsylvania Department of Environmental Resources, Bureau of Topographic and Geologic Survey. Summary Groundwater Resources of Lancaster County, Pennsylvania. Water Resources Report 43, 1977.
3. Pennsylvania Department of Environmental Resources, Bureau of Topographic and Geologic Survey. Atlas of Preliminary Geologic Quadrangle Maps of Pennsylvania. 1981.
4. Pennsylvania Department of Environmental Resources, Bureau of Topographic and Geologic Survey. Geologic Map of Pennsylvania. 1980.
5. Pennsylvania Department of Environmental Resources, Bureau of Topographic and Geologic Survey. Engineering Characteristics of the Rocks of Pennsylvania. Environmental Geology Report 1, 1982.
6. United States Department of Agriculture, Soil Conservation Service. Soil Survey of Lancaster County, Pennsylvania. October 1959

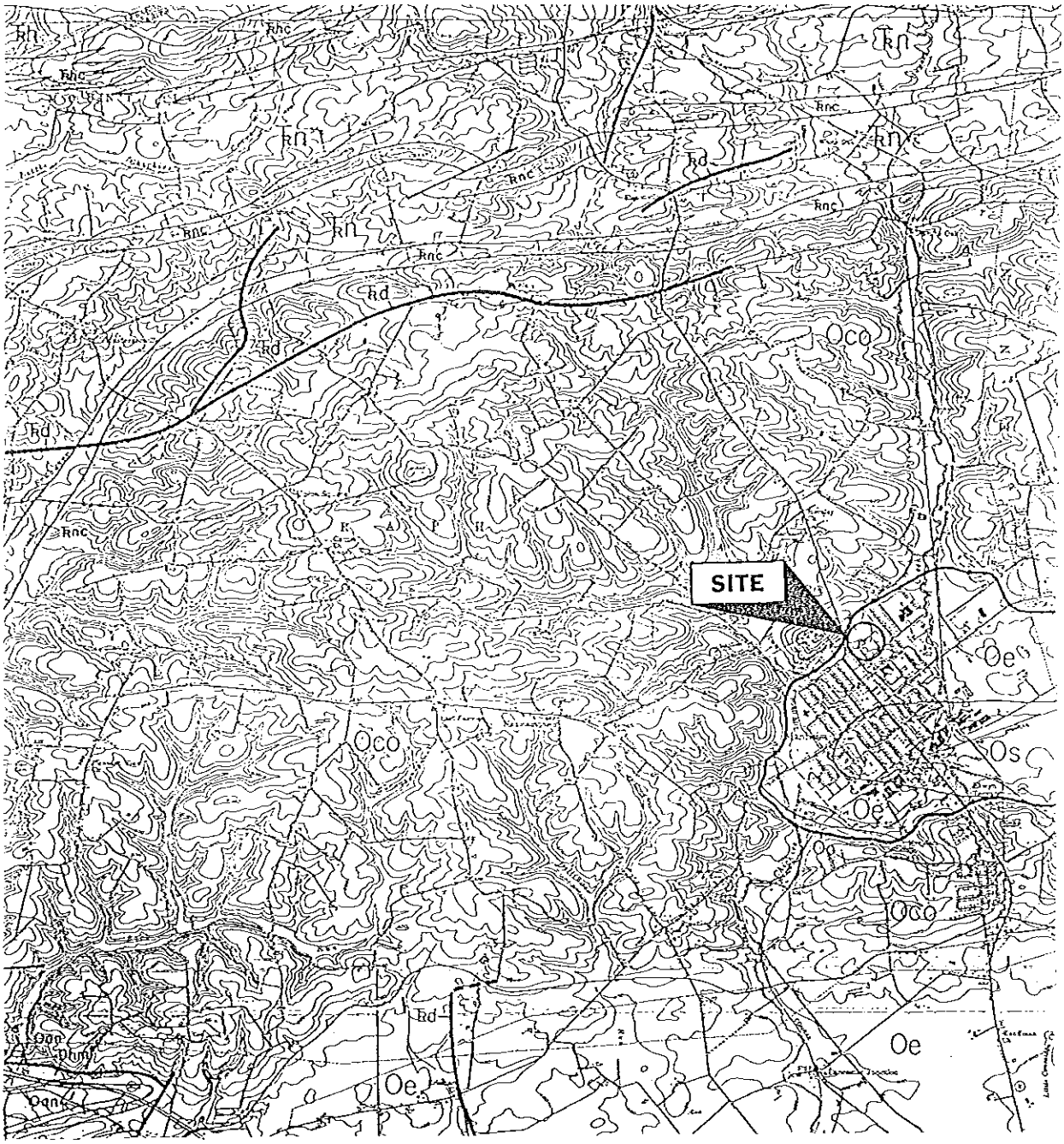
APPENDIX "A"



Geotechnical and Quality Control Engineers
SCHUYLKILL VALLEY ENGINEERING
4338 Pottsville Pike
Reading, Pennsylvania 19605
Telephone (610) 921-9221 FAX: (610) 921-0464
EMAIL: svei@verizon.net

PROJECT 1062G1

FIGURE I
SITE LOCATION
USGS TOPOGRAPHIC QUADRS. MAPS OF PA
MANHEIM QUADRANGLE



KEY

Oe – Epler Formation

Geotechnical and Quality Control Engineers
SCHUYLKILL VALLEY ENGINEERING
4338 Pottsville Pike
Reading, Pennsylvania 19605
Telephone (610) 921-9221 FAX: (610) 921-0464
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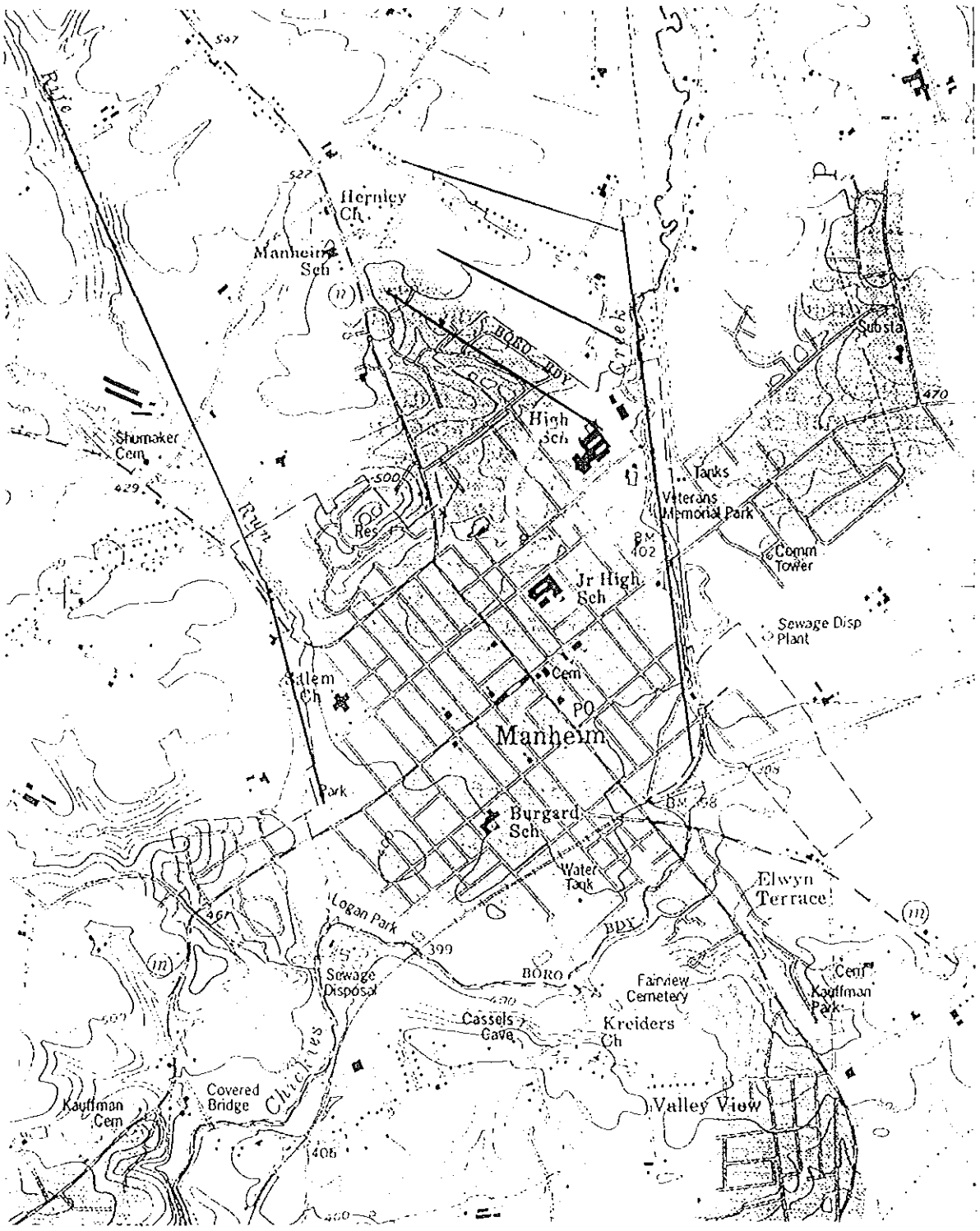
PROJECT 1062G1

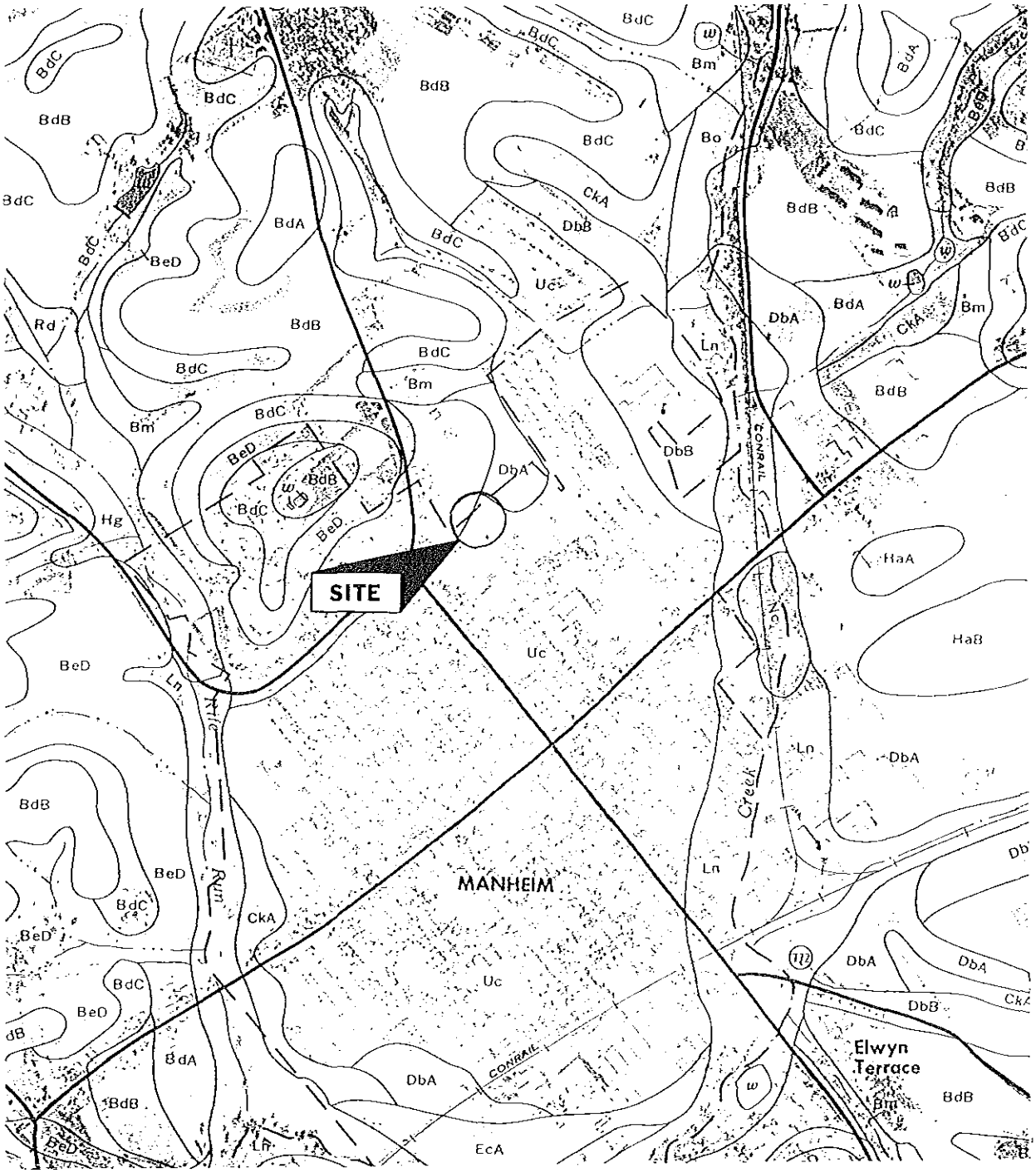
FIGURE II
SITE GEOLOGY
ATLAS OF GEOLOGICAL QUAD. MAPS OF PA
MANHEIM QUADRANGLE



Geotechnical and Quality Control Engineers
SCHUYLKILL VALLEY ENGINEERING
4338 Pottsville Pike
Reading, Pennsylvania 19605
Telephone (610) 921-9221 FAX: (610) 921-0464
EMAIL: svei@verizon.net

PROJECT 1062G1

GIBBLE'S QUARRY
FIGURE IIA
LINEAR FEATURES ANALYSIS
MANHEIM QUADRANGLE
LANCASTER COUNTY, PA



KEY

BdB – Bedington silt loam, 3 to 8% slopes.

Uc – Urban land

Geotechnical and Quality Control Engineers
SCHUYLKILL VALLEY ENGINEERING
4338 Pottsville Pike
Reading, Pennsylvania 19605
Telephone (610) 921-9221 FAX: (610) 921-0464
EMAIL svei@verizon.net

PROJECT 1062G1

FIGURE III
SITE SOILS
USDA SOIL SURVEY OF LANCASTER CO, PA
MANHEIM QUADRANGLE

TABLE "S": SUMMARY OF SUBSURFACE STUDY
FORMER GIBBLE'S QUARRY
BOROUGH OF MANHEIM, LANCASTER COUNTY, PENNSYLVANIA
SVEI PROJECT 1062G1R3

Test Pit and Auger Probe Number	Test Pit and Auger Probe Elevation	Depth to Top of the Waste	Waste Bottom Elevation	Comments
P1	429.2 ft	5.2 ft	424.0 ft	Excavation stopped when encountered foundry sand.
P2	428.7 ft	4.3 ft	425.4 ft	Excavation stopped when encountered foundry sand.
P3	428.7 ft	3.2 ft	425.5 ft	Excavation stopped when encountered foundry sand.
P4	427.9 ft	2.3 ft	425.6 ft	Excavation stopped when encountered foundry sand.
P5	426.7 ft	2.2 ft	424.5 ft	Excavation stopped when encountered foundry sand.
P6	422.9 ft	3.2 ft	419.7 ft	Incinerator waste, bottom consists of brown virgin soil. (8' depth)
P7	422.7 ft	N/A	N/A	Virgin Soil
P8	427.5 ft	5.1 ft	422.4 ft	Oversized rock fragments.
P9	426.7 ft	2.2 ft	424.5 ft	Excavation stopped when encountered foundry sand.
P10	421.6 ft	3.5 ft	418.1 ft	Incinerator waste, bottom consists of brown virgin soil. (10' depth)
P11	422.5 ft	N/A	N/A	Virgin Soil
P12	419.9 ft	N/A	N/A	Virgin Soil
P13	416.5 ft	0.5 ft	416.0 ft	Miscellaneous debris, swampy conditions, bottom consists of rock and soil. (9' deep)
P14	415.8 ft	0.5 ft	415.3 ft	Miscellaneous debris, swampy conditions, bottom consists of rock and soil. (8' deep)
P15	415.3 ft	N/A	N/A	Virgin Soil
P16	415.2 ft	0.5 ft	414.7 ft	Miscellaneous debris, foundry sand, tires, household junk, soil bottom (9.5 ft)
P17	420.7 ft	0.5 ft	420.2 ft	Foundry sand and miscellaneous debris, bottom consists of rock & soil. (10.2' deep)
P18	426.2 ft	7.0 ft	419.2 ft	Excavation stopped due to difficult digging conditions.
P19	418.6 ft	0.5 ft	418.1 ft	Excavated to 11 feet and abandoned the pit due to deep fill bottom.
P20	419.3 ft	1.2 ft	418.1 ft	Demolition debris, wood, metal, soil, trace of foundry sand. Bottom consists of brown soil. (13' deep)
P21	420.9 ft	0.5 ft	420.4 ft	Abandoned the excavation due to perched water conditions.
P22	423.2 ft	7.0 ft	416.2 ft	Foundry sand to 7' deep. Stopped excavation due to deep fill bottom.

Test Pit and Auger Probe Number	Test Pit and Auger Probe Elevation	Depth to Top of the Waste	Waste Bottom Elevation	Comments
P23	422.6 ft	4.0 ft	418.6 ft	Stopped excavation due to encountering concrete, metal and rock fragments at 9' depth.
Pa	429.2 ft	6.0 ft	423.2 ft	Clean soils 6.0' thick. Foundry sand approximately 5.0 thick.
Pb	428.1 ft	4.0 ft	424.1 ft	Clean soil approximately 4'. Foundry sand approximately 6' thick.
Pc	427.6 ft	4.0 ft	423.6 ft	Clean soil approximately 4'. Foundry sand approximately 7.5' thick.
Pd	426.9 ft	2.5 ft	424.4 ft	12' Virgin soil. The fill material is a mixture of foundry sand and crushed stone.
Pe	422.2 ft	6.5 ft	415.7 ft	6.5' limestone derived soil. Foundry sand approximately 9.0 ft thick.
Pf	426.7 ft	10.0 ft	416.7 ft	Excavation encountered approximately 10' of weathered shale. Abandoned pit due to side collapse.
Pg	425.9 ft	8.5 ft	417.4 ft	8.5' limestone derived soils. Abandoned excavation at 14' due to foundry sand side collapse.
Ph	420.8 ft	2.0 ft	418.8 ft	2' to 6' of soil cover (S-N). Approximately 8' of foundry sand.
Pi	422.7 ft	9.0 ft	413.7 ft	Limestone derived soils, 9' thick. Abandoned excavation at 16' depth due to side collapse.
Pj	420.9 ft	7.5 ft	413.4 ft	Limestone derived soils 7.5' thick. Foundry sand to a depth of approximately 14.5 ft.
Pk	427.7 ft	7.2 ft	420.5 ft	Clean soil approximately 7.2 ft. Foundry sand approximately 6' thick.
A1	420.9 ft	6.0 ft	414.9 ft	6' of soil cover. Foundry sand to an approximate depth of 17.5 ft.
A2	419.9 ft	0.5 ft	419.4 ft	Foundry sand to an approximate depth of 15.6 ft.
A3	416.7 ft	0.5 ft	416.2 ft	Foundry sand to an approximate depth of 16.3 ft.
A4	416.7 ft	0.5 ft	416.2 ft	Foundry sand to approximately 20.0 ft. Depth to rock approximately23.5 ft.
A5	415.8 ft	0.5 ft	415.3 ft	Foundry sand to approximately 22.0 ft. Depth to rock approximately24.3 ft.
A6	415.5 ft	0.5 ft	415.0 ft	Foundry sand to approximately 23.0 ft. Depth to rock approximately 30.8 ft.
A7	415.3 ft	0.5 ft	414.8 ft	Foundry sand to approximately 20.3 ft.
A8	417.2 ft	0.5 ft	416.7 ft	Foundry sand to approximately 16.9 ft. Three attempts. Possible large boulders.
A9	418.3 ft	0.5 ft	417.8 ft	Foundry sand to approximately 22.0 ft. Auger refusal at 28.8 ft.
A10	419.9 ft	7.0 ft	412.9 ft	7' of limestone derived soils. Foundry sand to approximately 15.1 ft.
A11	421.6 ft	7.0 ft	414.6 ft	7' of limestone derived soils. Foundry sand to an approximate depth of 21.0 ft. Auger refusal at 24.9 ft.
A12	422.6 ft	7.5 ft	415.1 ft	7.5' of limestone derived soils. Foundry sand to an approximate depth of 22.0 ft. Auger refusal at 23.0 ft.
A13	423.9 ft	7.5 ft	416.4 ft	7.5' of limestone derived soils. Foundry sand to an approximate depth of 20.0 ft. Auger refusal at 21.5 ft.
A14	422.1 ft	9.0 ft	413.1 ft	9' of limestone derived soils. Foundry sand to an approximate depth of 22.3 ft. Auger refusal at 23.1 ft.
A15	414.8 ft	9.0 ft	405.8 ft	9' of limestone derived soils. Foundry sand to an approximate depth of 22.0 ft. Auger refusal at 23.9 ft.

Test Pit and Auger Probe Number	Test Pit and Auger Probe Elevation	Depth to Top of the Waste	Waste Bottom Elevation	Comments
A16	420.9 ft	N/A	N/A	Clean soils, limestone derived. Trace of foundry sand. Auger refusal at 17.2 ft.
A17	422.6 ft	N/A	N/A	Clean soils, limestone derived. Auger refusal at 15.5 ft.
A18	415.3 ft	N/A	N/A	Clean soil material. Auger refusal at 15.5 ft
A19	428.9 ft	N/A	N/A	Clean soil material. Auger refusal at 16.2 ft

NOTES:

1. The relative elevations stated in this table are established using the elevation 421.36 feet, as benchmark. This elevation of the existing sewer rim manhole located east of North Hazel Street end, is marked on the Existing Conditions Plan, prepared for TCS Family Enterprises Inc, Manheim Borough, Lancaster County, Pennsylvania, by Regester Associates, Inc, P.O. Box 406, Kennett Square, Pennsylvania, 19348, job number 29591, Drawing no. S-1146, dated November 16, 2006. These elevations should be used only for reference.

TABLE "W": WELL CONSTRUCTION DETAILS
FORMER GIBBLE'S QUARRY
BOROUGH OF MANHEIM, LANCASTER COUNTY, PENNSYLVANIA
SVEI PROJECT 1062G1R3

Well No.	Well Dia. (in)	Casing Matl.	Total Depth (ft)	Cased Interv. (ft)	Screen Interv. (SC)	Ground Elev. (ft)	Casing Elev. (ft)	Depth to water (ft)	GW Elev. (ft)
MW1	2	PVC	52.0	0 to 10	11 to 52	414.45	416.45	19.05	397.40
MW2	2	PVC	49.0	0 to 10	11 to 49	425.24	426.94	24.54	402.40
MW3	2	PVC	55.0	0 to 10	11 to 55	428.28	430.78	21.37	409.41
MW4.1	2	PVC	48.5	0 to 10	11 to 48.5	415.90	418.00	21.74	396.26
MW4.2	2	PVC	53.5	0 to 10	11 to 53.5	423.92	426.52	25.22	401.20

NOTES:

1. The well relative elevations stated in this table are established using the elevation 421.36 feet, as benchmark. This elevation of the existing sewer rim manhole located east of North Hazel Street end, is marked on the Existing Conditions Plan, prepared for TCS Family Enterprises Inc, Manheim Borough, Lancaster County, Pennsylvania, by Regester Associates, Inc, P.O. Box 406, Kennett Square, Pennsylvania, 19348, job number 29591, Drawing no. S-1146, dated November 16, 2006.
2. The data related to well 4.1 is not reliable as the water recovery was very slow.
3. Subsequent measurements of the groundwater elevations at approximately two (2) months intervals indicated minor variations from the data presented above.

Table 1:
Metals Asbestos in Soils
Former Gibble's Quarry
Borough of Manheim, Lancaster County, Pennsylvania

Analyte	Units	Direct Contact Residential MSCs 0-15'	Direct Contact Non-Res. MSCs Surface Soil 0-2'	Direct Contact Non-Res. MSCs Subsurface Soil 2-15'	MSCs Soil to Groundwater Conc. / Buffer in Ft.	S1(8'-12') 7/19/2003	S2(5'-10') 7/19/2003	S3(5'-10') 7/19/2003	S4(5'-10') 7/19/2003	S5(5'-10') 7/19/2003	S6(5'-10') 7/19/2003	S7(1'-5') 9/11/2003	S8(4'-8') 9/11/2003	S9(4'-8') 9/11/2003
Antimony	mg/kg	88	1100	190000	27 /15	ND	ND	ND	ND	ND	ND	ND	ND	ND
Arsenic	mg/kg	12	53	190000	150 /15	7.89	3.94	4.11	4.92	0.602	4.91	2.94	3.86	5.27
Barium	mg/kg	15000	190000	190000	8200/15	134	2080	132	123	147	137	67.7	47.5	3690
Beryllium	mg/kg	440	5600	190000	320 /10	ND	ND	ND	ND	ND	ND	ND	ND	ND
Cadmium	mg/kg	47	210	190000	38 /15	1.15	2.36	0.9	0.33 J	.073 J	0.64	0.31 J	0.762	0.62
Chromium	mg/kg	94	420	190000	190 /15	143	95.5	149	13.6	8.6	41.9	10	36.6	68.5
Copper	mg/kg	8200	100000	190000	36000 /10	ND	ND	ND	ND	ND	ND	ND	ND	ND
Lead	mg/kg	500	1000	190000	450 /10	186	**11,300**	94.2	127	7.54	89.7	27	63.8	**62,800**
Nickel	mg/kg	4400	56000	190000	650 /15	ND	ND	ND	ND	ND	ND	31.9	85.5	181
Selenium	mg/kg	1100	14000	190000	26 /20	<0.577	0.927	<.584	<0.611	<0.596	<0.594	ND	ND	ND
Silver	mg/kg	1100	14000	190000	84 /20	0.14 J	2.12	0.21	<0.611	<0.596	<0.594	ND	ND	ND
Thallium	mg/kg	15	200	190000	14 /15	ND	ND	ND	ND	ND	ND	ND	ND	ND
Zinc	mg/kg	66000	190000	190000	12000 /15	ND	ND	ND	ND	ND	ND	68.4	69.4	3730
Mercury	mg/kg	66	840	190000	10/15	0.195	1.85	0.109	0.799	ND	ND	ND	ND	ND
Asbestos	mg/kg					1%	25%	1%	1%	<1%	<1%	ND	ND	32%

J - Analyte detected below quantitation limits.
ND - Analyte not detected

Table 1:
Metals Asbestos in Soils
Former Gibble's Quarry
Borough of Manheim, Lancaster County, Pennsylvania

Analyte	Units	Direct Contact Residential MSCs 0-15'	Direct Contact Non-Res. MSCs Surface Soil 0-2'	Direct Contact Non-Res. MSCs Subsurface Soil 2-15'	MSCs Soil to Groundwater Conc. / Buffer in Ft.	S10(4'-5') 9/11/2003	S12(1'-5') 9/11/2003	S13(1'-5') 9/11/2003	S14(5'-10') 9/11/2003	S15(5'-10') 9/11/2003	S16(5'-10') 9/11/2003	S17(1'-5') 11/26/2003	S18(1'-5') 11/26/2003
Antimony	mg/kg	88	1100	190000	27 /15	ND	ND	ND	ND	ND	ND	ND	ND
Arsenic	mg/kg	12	53	190000	150 /15	2.65	3.65	7.51	4.19	4.03	4.55	2.72	2.6
Barium	mg/kg	15000	190000	190000	8200/15	37.2	49.4	24.8	218	237	43.8	17.1	16.5
Beryllium	mg/kg	440	5600	190000	320 /10	ND	ND	ND	ND	ND	ND	ND	ND
Cadmium	mg/kg	47	210	190000	38 /15	0.42	0.666	2.9	1.8	1.39	0.638	0.18 J	0.17
Chromium	mg/kg	94	420	190000	190 /15	11.4	55.4	715	33.5	73.1	19.8	30.4	37.6
Copper	mg/kg	8200	100000	190000	36000 /10	ND	ND	ND	ND	ND	ND	ND	ND
Lead	mg/kg	500	1000	190000	450 /10	19.7	35.5	22	82.5	13	11.9	19.7	19.4
Nickel	mg/kg	4400	56000	190000	650 /15	40.7	127	11,400	70.8	255	103	86.2	112
Selenium	mg/kg	1100	14000	190000	26 /20	ND	ND	ND	ND	ND	ND	ND	ND
Silver	mg/kg	1100	14000	190000	84 /20	ND	ND	ND	ND	ND	ND	ND	ND
Thallium	mg/kg	15	200	190000	14 /15	ND	ND	ND	ND	ND	ND	ND	ND
Zinc	mg/kg	66000	190000	190000	12000 /15	39.9	106	358	133	42.7	38.7	36.4	21.4
Mercury	mg/kg	66	840	190000	10/15	ND	ND	ND	ND	ND	ND	ND	ND
Asbestos	mg/kg						ND	ND	ND	ND	ND	<1%	<1%

J - Analyte detected below quantitation limits.
ND - Analyte not detected

Table 1:
Metals Asbestos in Soils
Former Gibble's Quarry
Borough of Manheim, Lancaster County, Pennsylvania

Analyte	Units	Direct Contact Residential MSCs 0-15'	Direct Contact Non-Res. MSCs Surface Soil 0-2'	Direct Contact Non-Res. MSCs Subsurface Soil 2-15'	MSCs Soil to Groundwater Conc. / Buffer in Ft.	S19(1'-5') 11/26/2003	S20(1'-5') 11/26/2004	S22(1'-5') 5/14/2004
Antimony	mg/kg	88	1100	190000	27 /15	ND	ND	ND
Arsenic	mg/kg	12	53	190000	150 /15	3.51	4.41	4
Barium	mg/kg	15000	190000	190000	8200/15	24.3	28.5	25
Beryllium	mg/kg	440	5600	190000	320 /10	ND	ND	ND
Cadmium	mg/kg	47	210	190000	38 /15	0.649	<0.543	<0.5
Chromium	mg/kg	94	420	190000	190 /15	38.6	38.9	49.2
Copper	mg/kg	8200	100000	190000	36000 /10	ND	ND	ND
Lead	mg/kg	500	1000	190000	450 /10	27	16.8	73
Nickel	mg/kg	4400	56000	190000	650 /15	99.5	126	79
Selenium	mg/kg	1100	14000	190000	26 /20	ND	ND	ND
Silver	mg/kg	1100	14000	190000	84 /20	ND	ND	ND
Thallium	mg/kg	15	200	190000	14 /15	ND	ND	ND
Zinc	mg/kg	66000	190000	190000	12000 /15	208	30.7	51
Mercury	mg/kg	66	840	190000	10/15	ND	ND	ND
Asbestos	mg/kg					<1%	<1%	ND

J - Analyte detected below quantitation limits.
ND - Analyte not detected

Table 2:
Volatile Organic Compounds (VOC) in Soils
Former Gibble's Quarry
Borough of Manheim, Lancaster County, Pennsylvania

Analyte	Units	Direct Contact Residential MSCs 0-15'	Direct Contact Non-Res. MSCs Surface Soil 0-2'	Direct Contact Non-Res. MSCs Subsurface Soil 2-15'	MSCs Soil to Groundwater Conc.	S1(8'-12') 7/19/2003	S2(5'-10') 7/19/2003	S3(5'-10') 7/19/2003	S4(5'-10') 7/19/2003	S5(5'-10') 7/19/2003	S6(6'-10') 7/19/2003
Acetone	ug/kg	10000000	10000000	10000000	370000	24	<89	<25	20 J	20 J	<28
Benzene	ug/kg	41000	210000	240000	500	18	10 J	12	15	3 J	38
Bromodichloromethane	ug/kg	8600	45000	51000	10000	<4.6	<18	<5.0	<4.9	<4.4	<5.7
Bromoform	ug/kg	290000	1500000	1700000	10000	<4.6	<18	<5.0	<4.9	<4.4	<5.7
2-Butanone	ug/kg					8 J	<89	10	<24	5	<28
Bromomethane	ug/kg	95000	270000	300000	1000	<9.4	<36	<10.0	<9.7	<8.7	<11
Carbon disulfide	ug/kg	10000000	10000000	10000000	190000	5.7	<18	4 J	<4.9	7.4	<5.7
Carbon tetrachloride	ug/kg	21000	110000	120000	500	<4.6	<18	<5.0	<4.9	<4.4	<5.7
Chlorobenzene	ug/kg	4400000	10000	10000	10000	<4.6	<18	<5.0	<4.9	<4.4	<5.7
Chloroethane	ug/kg	6200000	10000000	10000000	23000	<9.4	<36	<10	<9.7	<8.7	<11
Chloroform	ug/kg	6000	17000	19000	10000	<4.6	<18	<5.0	<4.9	<4.4	<5.7
Chloromethane	ug/kg	180000	920000	1000000	300	<9.4	<36	<10	<9.7	<8.7	<11
cis-1,2-Dichloroethene	ug/kg	670000	1900000	2100000	7000	<4.6	<18	<5.0	<4.9	<4.4	<5.7
cis-1,3-Dichloropropene	ug/kg	NA				<4.6	<18	<5.0	<4.9	<4.4	<5.7
1,1-Dichloroethane	ug/kg					<4.6	<18	<5.0	<4.9	<4.4	<5.7
1,1-Dichloroethene	ug/kg					<4.6	<18	<5.0	<4.9	<4.4	<5.7
1,2-Dichloroethane	ug/kg					<4.6	<18	<5.0	<4.9	<4.4	<5.7
1,2-Dichloropropane	ug/kg					<4.6	<18	<5.0	<4.9	<4.4	<5.7
Ethylbenzene	ug/kg	10000000	10000000	10000000	70000	15	<18	25	<4.9	2 J	5
2-Hexanone	ug/kg					<4.6	<18	<5.0	<4.9	<4.4	<5.7
p,m-Xylene	ug/kg					64	<36	330	11	5 J	17
Methylene chloride	ug/kg	180000	920000	1000000	300	2 J	<18	<5.0	<4.9	<4.4	4 J
4-Methyl-2-pentanone	ug/kg					<4.6	<89	<25	<24	<22	<28
o-Xylene	ug/kg					71	<18	130	5.9	3 J	9.4
Styrene	ug/kg	10000000	10000000	10000000	24000	<4.6	<18	<5.0	<4.9	<4.4	<5.7
1,1,2,2-Tetrachloroethane	ug/kg					<4.6	<18	<5.0	<4.9	<4.4	<5.7
Tetrachloroethene	ug/kg	340000	1500000	3300000	500	<4.6	<18	<5.0	<4.9	<4.4	<5.7
Toluene	ug/kg	7600000	10000000	10000000	100000	14	10 J	11	14	3 J	22
trans-1,2-Dichloroethene	ug/kg	1300000	3700000	4300000	10000	<4.6	<18	<5.0	<4.9	<4.4	<5.7

J - Analyte detected below quantitation limits.

Table 2:
Volatile Organic Compounds (VOC) in Soils
Former Gibble's Quarry
Borough of Manheim, Lancaster County, Pennsylvania

Analyte	Units	Direct Contact Residential MSCs 0-15'	Direct Contact Non-Res. MSCs Surface Soil 0-2'	Direct Contact Non-Res. MSCs Subsurface Soil 2-15'	MSCs Soil to Groundwater Conc.	S1(8'-12') 7/19/2003	S2(5'-10') 7/19/2003	S3(5'10) 7/19/2003	S4(5'-10') 7/19/2003	S5(5'-10') 7/19/2003	S6(5'-10') 7/19/2003
trans-1,3-Dichloropropene	ug/kg	NA				<4.6	<18	<5.0	<4.9	<4.4	<5.7
1,1,1-Trichlorotane	ug/kg					<4.6	<18	<5.0	<4.9	<4.4	<5.7
Trichloroethene	ug/kg	190000	970000	1100000	500	<4.6	<18	<5.0	<4.9	<4.4	<5.7
Vinyl chloride	ug/kg	12000	53000	220000	200	<4.6	<36	<10	<9.7	<8.7	<11
1,2-Dichloroethane	ug/kg	12000	63000	73000	500	<9.4	<36	<10.0	<9.7	<8.7	<11
Xylenes (total)	0	8000	10000	10000	1000000	130	<54	460	16	8 J	27

J - Analyte detected below quantitation limits.

Table 3:
Semi- VOCs in Soils
Former Gibble's Quarry
Borough of Manheim, Lancaster County, Pennsylvania

Analyte	Units	Direct Contact Residential MSCs 0-15'	Direct Contact Non-Res. MSCs Surface Soil 0-2'	Direct Contact Non-Res. MSCs Subsurface Soil 2-15'	MSCs Soil to GrouNSwater Conc. / Buffer in Ft.	S1(8'-12') 7/19/2003	S2(5'-10') 7/19/2003	S3(5'10) 7/19/2003	S4(5'-10') 7/19/2003	S5(6'-10') 7/19/2003	S6(6'-10') 7/19/2003
Acenaphthene	ug/kg	13000000	170000000	190000000	2700000/15	<19,000	ND	<19,000	2,000 J	<19,000	<19,000
Acenaphthylene	ug/kg	13000000	170000000	190000000	2500000/15	<19,000	ND	<19,000	<20,000	<19,000	<19,000
Aniline	ug/kg	19000	53000	60000	280/NA	<19,000	ND	<19,000	**<20,000**	<19,000	<19,000
Anthracene	ug/kg	66000	190000000	190000000	350/10	<19,000	ND	<19,000	3,000 J	<19,000	<19,000
Benzoic acid	ug/kg	190000000	190000000	190000000	15000000/NA	ND	ND	ND	ND	ND	ND
Benz (a) anthracene	ug/kg	25000	110000	190000000	79000/5	10,000 J	ND	4,000 J	20,000 J	4,000 J	5,000 J
Benzo (a) pyrene	ug/kg	2500	11000	190000000	46000/5	10,000 J	ND	**5000 J**	**32,000**	**8,000 J**	**8,000 J**
Benzo (b) fluoranthene	ug/kg	25000	110000	190000000	120000/5	6,000 J	ND	4,000 J	**31,000**	6,000 J	6,000 J
Benzo (g,h,i) perylene	ug/kg	13000000	170000000	190000000	180000/5	6,000 J	ND	3,000 J	20,000 J	5,000 J	4,000 J
Benzo (k) fluoranthene	ug/kg	25000	110000	190000000	610000/5	2,000 J	ND	2,000 J	**29,000**	7,000 J	4,000 J
Benzyl alcohol	ug/kg	10000000	10000000	10000000	1100000/NA	ND	ND	ND	ND	ND	ND
Bis(2-chloroethoxy)methane	ug/kg	NA				<19,000	ND	<19,000	<20,000	<19,000	<19,000
Bis(2-chloroethyl)ether	ug/kg	960	5000	5700	13/NA	**<19,000**	ND	**<19,000**	**<20,000**	**<19,000**	**<19,000**
Bis(2-chloroisopropyl)ether	ug/kg	32000	160000	190000	30000/NA	<19,000	ND	<19,000	<20,000	<19,000	<19,000
Bis(2-ethylhexyl)phthalate	ug/kg	1300000	5700000	10000000	130000/10	<19,000	ND	<19,000	<20,000	<19,000	<19,000
4-Bromophenyl phenyl ether	ug/kg	NA				<19,000	ND	<19,000	<20,000	<19,000	<19,000
Butyl benzyl phthalate	ug/kg	10000000	10000000	10000000	10000000/10	<19,000	ND	<19,000	<20,000	<19,000	3,000 J
4-Chloroaniline	ug/kg	880000	11000000	190000000	19000/NA	<19,000	ND	<19,000	<20,000	<19,000	<19,000
4-Chloro-3-methylphenol	ug/kg	1100000	14000000	190000000	37000/30	<19,000	ND	<19,000	<20,000	<19,000	<19,000
2-Chloronaphthalene	ug/kg	18000	190000000	190000000	6200000/15	**<19,000**	**<19,000**	<20,000	ND	**<19,000**	**<19,000**
2-Chlorophenol	ug/kg	330000	920000	1100000	4400/NA	<19,000	<19,000	<20,000	ND	<19,000	<19,000
4-Chlorophenyl phenyl ether	ug/kg	NA				<19,000	ND	<19,000	<20,000	<19,000	<19,000
Chrysene	ug/kg	2500000	11000000	190000000	230000/5	20,000	ND	8,000 J	20,000 J	5,000 J	8,000 J
Dibenz (a,h) anthracene	ug/kg	2500	11000	190000000	41000/5	**<19,000**	ND	**<19,000**	<20,000	**<19,000**	**<19,000**
Dibenzofuran	ug/kg	NA				<19,000	<25,000	<19,000	<20,000	<19,000	<19,000
1,2-Dichlorobenzene	ug/kg	3800000	10000000	10000000	60000/NA	<19,000	<25,000	<19,000	<20,000	<19,000	<19,000
1,3-Dichlorobenzene	ug/kg	6600000	10000000	10000000	61000/NA	<19,000	<25,000	<19,000	<20,000	<19,000	<19,000
1,4-Dichlorobenzene	ug/kg	750000	3300000	190000000	10000/30	<19,000	<25,000	<19,000	<20,000	<19,000	<19,000
3,3'-Dichlorobenzidine	ug/kg	40000	180000	190000000	8300/10	<19,000	ND	**<57,000**	**59,000**	**<59,000**	**<58,000**

J - Analyte detected below quantitation limits.

NS - No Sample

Table 3:
Semi- VOCs in Soils
Former Gibble's Quarry
Borough of Manheim, Lancaster County, Pennsylvania

Analyte	Units	Direct Contact Residential MSCs 0-15'	Direct Contact Non-Res. MSCs Surface Soil 0-2'	Direct Contact Non-Res. MSCs Subsurface Soil 2-15'	MSCs Soil to GrouNSwater Conc. / Buffer in Ft.	S1(8'-12') 7/19/2003	S2(5'-10') 7/19/2003	S3(5'10) 7/19/2003	S4(5'-10') 7/19/2003	S5(5'-10') 7/19/2003	S6(6'-10') 7/19/2003
2,4-Dichlorophenol	ug/kg	660000	8400000	190000000	2000/NA	<19,000	<25,000	<19,000	<20,000	<19,000	<19,000
Diethyl phthalate	ug/kg	10000000	10000000	10000000	500000/NA	<19,000	<25,000	<19,000	<20,000	<19,000	<19,000
2,4-Dimethylphenol	ug/kg	4400000	10000000	10000000	73000/NA	<19,000	7,000 J	<19,000	ND	<19,000	<19,000
Dimethyl phthalate	ug/kg	NA				<19,000	<25,000	<19,000	<20,000	<19,000	<19,000
Di-n-butyl phthalate	ug/kg	10000000	10000000	10000000	1500000/20	<19,000	ND	7,000 J	<20,000	<19,000	<19,000
4,6-Dinitro-2-methylphenol	ug/kg	NA				<19,000	ND	<19,000	<20,000	<19,000	<19,000
2,4-Dinitrophenol	ug/kg	440000	5600000	190000000	1900/NA	<19,000	ND	<19,000	<20,000	<19,000	<19,000
2,4-Dinitrotoluene	ug/kg	58000	260000	190000000	210/NA	<19,000	ND	<19,000	<20,000	<19,000	<19,000
2,6-Dinitrotoluene	ug/kg	220000	2800000	190000000	3700/NA	<19,000	ND	<19,000	<20,000	<19,000	<19,000
Di-n-octyl phthalate	ug/kg	4400000	10000000	10000000	10000000/5	<19,000	ND	<19,000	<20,000	<19,000	<19,000
Fluoranthene	ug/kg	8800000	110000000	190000000	3200000/10	2,000 J	<25,000	4,000 J	26,000	4,000 J	2,000 J
Fluorene	ug/kg	8800000	110000000	190000000	3000000/15	<19,000	<25,000	<19,000	<20,000	<19,000	<19,000
Hexachlorobenzene	ug/kg	11000	50000	190000000	960/15	**<19,000**	**<25,000**	**<19,000**	**<20,000**	**<19,000**	**<19,000**
Hexachlorobutadiene	ug/kg	44000	560000	10000000	1200/15	<19,000	<25,000	<19,000	<20,000	<19,000	<19,000
Hexachlorocyclopentadiene	ug/kg	1300000	10000000	10000000	91000/15	<19,000	<25,000	<19,000	<20,000	<19,000	<19,000
Hexachloroethane	ug/kg	220000	2800000	190000000	560/15	<19,000	<25,000	<19,000	<20,000	<19,000	<19,000
Indeno (1,2,3-cd) pyrene	ug/kg	25000	110000	190000000	7000000/5	2,000 J	<25,000	<19,000	20,000 J	4,000 J	2,000 J
Isophorone	ug/kg	10000000	10000000	10000000	10000/NA	<19,000	<25,000	<19,000	<20,000	<19,000	<19,000
2-Methylnaphthalene	ug/kg	4400000	10000000	10000000	2900000/15	<19,000	ND	<19,000	<20,000	<19,000	<19,000
2-Methylphenol	ug/kg	10000000	10000000	10000000	180000/NA	<19,000	ND	<19,000	<20,000	<19,000	<19,000
4-Methylphenol	ug/kg	10000000	10000000	10000000	180000/NA	<19,000	ND	<19,000	<20,000	<19,000	<19,000
Naphthalene	ug/kg	4400000	56000000	190000000	25000/30	<19,000	<25,000	<19,000	<20,000	<19,000	<19,000
2-Nitroaniline	ug/kg	13000	160000	190000000	210/NA	**<19,000**	ND	**<19,000**	**<20,000**	**<19,000**	**<19,000**
3-Nitroaniline	ug/kg	13000	160000	190000000	210/NA	**<19,000**	ND	**<19,000**	**<20,000**	**<19,000**	**<19,000**
4-Nitroaniline	ug/kg	13000	160000	190000000	210/NA	**<19,000**	ND	**<19,000**	**<20,000**	**<19,000**	**<19,000**
Nitrobenzene	ug/kg	110000	1400000	10000000	1800/NA	<19,000	<25,000	<19,000	<20,000	<19,000	<19,000
2-Nitrophenol	ug/kg	1800000	22000000	190000000	29000/NA	<19,000	ND	<19,000	<20,000	<19,000	<19,000
4-Nitrophenol	ug/kg	1800000	22000000	190000000	6000/NA	<19,000	ND	<19,000	<20,000	<19,000	<19,000
N-Nitrosodi-n-propylamine	ug/kg	2600	11000	10000000	9.4/NA	**<19,000**	**<25,000**	**<19,000**	**<20,000**	**<19,000**	**<19,000**

J - Analyte detected below quantitation limits.

NS - No Sample

Table 3:
Semi- VOCs in Soils
Former Gibble's Quarry
Borough of Manheim, Lancaster County, Pennsylvania

Analyte	Units	Direct Contact Residential MSCs 0-15'	Direct Contact Non-Res. MSCs Surface Soil 0-2'	Direct Contact Non-Res. MSCs Subsurface Soil 2-15'	MSCs Soil to GrouNSwater Conc. / Buffer in Ft.	S1(8'-12') 7/19/2003	S2(6'-10') 7/19/2003	S3(5'10) 7/19/2003	S4(5'-10') 7/19/2003	S5(5'-10') 7/19/2003	S6(6'-10') 7/19/2003
N-Nitrosodiphenylamine	ug/kg	3700000	16000000	190000000	20000/30	<19,000	<25,000	<19,000	<20,000	<19,000	<19,000
Pentachlorophenol	ug/kg	150000	660000	190000000	5000/10	<19,000	<25,000	<19,000	<20,000	<19,000	<19,000
Phenanthrene	ug/kg	66000000	190000000	190000000	10000000/10	5,000 J	<25,000	6,000 J	10,000 J	3,000 J	2,000 J
Phenol	ug/kg	130000000	190000000	190000000	400000/NA	3,000 J	4,000 J	<19,000	<20,000	20,000 J	<19,000
Pyrene	ug/kg	6600000	84000000	190000000	2200000/10	9,000 J	<25,000	7,000 J	22,000	5,000 J	5,000 J
1,2,4-Trichlorobenzene	ug/kg	2200000	10000000	10000000	27000/20	<19,000	<25,000	<19,000	<20,000	<19,000	<19,000
2,4,5-Trichlorophenol	ug/kg	22000000	190000000	190000000	2300000/15	<19,000	<25,000	<19,000	<20,000	<19,000	<19,000
2,4,6-Trichlorophenol	ug/kg	66000	840000	190000000	3100/20	<19,000	<25,000	<19,000	<20,000	<19,000	<19,000

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Table 3:
Semi- VOCs in Soils
Former Gibble's Quarry
Borough of Manheim, Lancaster County, Pennsylvania

Analyte	Units	Direct Contact Residential MSCs 0-15'	Direct Contact Non-Res. MSCs Surface Soil 0-2'	Direct Contact Non-Res. MSCs Subsurface Soil 2-15'	MSCs Soil to GrouNSwater Conc. / Buffer in Ft.	S7(1'-5') 9/11/2003	S8(4'-8') 9/11/2003	S9(4'-6') 9/11/2003	S10(4'-8') 9/11/2003	S11(5'-8') 9/11/2003	S12(1'-5') 9/11/2003
Acenaphthene	ug/kg	13000000	170000000	190000000	2700000/15	<4600	<3800	<5300	<3800	<3,800	<3900
Acenaphthylene	ug/kg	13000000	170000000	190000000	2500000/15	<4600	<3800	<5300	<3800	<3,800	<3900
Aniline	ug/kg	19000	53000	60000	280/NA	<4600	<3800	<5300	<3800	<3,800	<3900
Anthracene	ug/kg	66000	190000000	190000000	350/10	<4600	<3800	<5300	<3800	400 J	<3900
Benzoic acid	ug/kg	190000000	190000000	190000000	15000000/NA	ND	ND	ND	ND	ND	ND
Benz (a) anthracene	ug/kg	25000	110000	190000000	79000/5	2000 J	<3800	<5300	3000 J	5800	2000 J
Benzo (a) pyrene	ug/kg	2500	11000	190000000	46000/5	2000 J	**<3800**	**<5300**	**3900 J**	**6,800**	**3000 J**
Benzo (b) fluoranthene	ug/kg	25000	110000	190000000	120000/5	1000 J	<3800	<5300	2000 J	4000 J	2000 J
Benzo (g,h,i) perylene	ug/kg	13000000	170000000	190000000	180000/5	1000 J	<3800	700 J	2000 J	3000 J	2000 J
Benzo (k) fluoranthene	ug/kg	25000	110000	190000000	610000/5	500 J	<3800	<5300	800 J	1000 J	800 J
Benzyl alcohol	ug/kg	10000000	10000000	10000000	1100000/NA	ND	ND	ND	ND	ND	ND
Bis(2-chloroethoxy)methane	ug/kg	NA				<4600	<3800	<5300	<3800	<3,800	<3900
Bis(2-chloroethyl)ether	ug/kg	960	5000	5700	13/NA	**<4600**	**<3800**	**<5300**	**<3800**	**<3,800**	**<3900**
Bis(2-chloroisopropyl)ether	ug/kg	32000	160000	190000	30000/NA	<4600	<3800	<5300	<3800	<3,800	<3900
Bis(2-ethylhexyl)phthalate	ug/kg	1300000	5700000	10000000	130000/10	<4600	<3800	600 J	<3800	<3,800	<3900
4-Bromophenyl phenyl ether	ug/kg	NA				<4600	<3800	<5300	<3800	<3,800	<3900
Butyl benzyl phthalate	ug/kg	10000000	10000000	10000000	10000000/10	<4600	<3800	<5300	<3800	<3,800	<3900
4-Chloroaniline	ug/kg	880000	11000000	190000000	19000/NA	<4600	<3800	<5300	<3800	<3,800	<3900
4-Chloro-3-methylphenol	ug/kg	1100000	14000000	190000000	37000/30	<4600	<3800	<5300	<3800	<3,800	<3900
2-Chloronaphthalene	ug/kg	18000	190000000	190000000	6200000/15	<4600	<3800	<5300	<3800	<3,800	<3900
2-Chlorophenol	ug/kg	330000	920000	1100000	4400/NA	<4600	<3800	<5300	<3800	<3,800	<3900
4-Chlorophenyl phenyl ether	ug/kg	NA				<4600	<3800	<5300	<3800	<3,800	<3900
Chrysene	ug/kg	2500000	11000000	190000000	230000/5	4000 J	<3800	<5300	5800	12000	4800
Dibenz (a,h) anthracene	ug/kg	2500	11000	190000000	41000/5	<4600	<3800	<5300	600 J	1000 J	700 J
Dibenzofuran	ug/kg	NA				<4600	<3800	<5300	<3800	400 J	<3900
1,2-Dichlorobenzene	ug/kg	3800000	10000000	10000000	60000/NA	<4600	<3800	<5300	<3800	<3,800	<3900
1,3-Dichlorobenzene	ug/kg	6600000	10000000	10000000	61000/NA	<4600	<3800	<5300	<3800	<3,800	<3900
1,4-Dichlorobenzene	ug/kg	750000	3300000	190000000	10000/30	<4600	<3800	<5300	<3800	<3,800	<3900
3,3'-Dichlorobenzidine	ug/kg	40000	180000	190000000	8300/10	<4600	<3800	<5300	<3800	<12,000	<12000

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Table 3:
Semi- VOCs in Soils
Former Gibble's Quarry
Borough of Manheim, Lancaster County, Pennsylvania

Analyte	Units	Direct Contact Residential MSCs 0-15'	Direct Contact Non-Res. MSCs Surface Soil 0-2'	Direct Contact Non-Res. MSCs Subsurface Soil 2-15'	MSCs Soil to GrouNSwater Conc. / Buffer in Ft.	S7(1'-5') 9/11/2003	S8(4'-8') 9/11/2003	S9(4'-6') 9/11/2003	S10(4'-8') 9/11/2003	S11(6'-8') 9/11/2003	S12(1'-5') 9/11/2003
2,4-Dichlorophenol	ug/kg	660000	8400000	190000000	2000/NA	<4600	<3800	<5300	<3800	<3,800	<3900
Diethyl phthalate	ug/kg	10000000	10000000	10000000	500000/NA	<4600	<3800	<5300	<3800	<3,800	<3900
2,4-Dimethylphenol	ug/kg	4400000	10000000	10000000	73000/NA	<4600	<3800	<5300	<3800	1000 J	<3900
Dimethyl phthalate	ug/kg	NA				<4600	<3800	<5300	<3800	<3,800	<3900
Di-n-butyl phthalate	ug/kg	10000000	10000000	10000000	1500000/20	<4600	<3800	<5300	<3800	<3,800	<3900
4,6-Dinitro-2-methylphenol	ug/kg	NA				<4600	<3800	<5300	<3800	<3,800	<3900
2,4-Dinitrophenol	ug/kg	440000	5600000	190000000	1900/NA	<4600	<3800	<5300	<3800	<3,800	<3900
2,4-Dinitrotoluene	ug/kg	58000	260000	190000000	210/NA	<4600	<3800	<5300	<3800	<3,800	<3900
2,6-Dinitrotoluene	ug/kg	220000	2800000	190000000	3700/NA	<4600	<3800	<5300	<3800	<3,800	<3900
Di-n-octyl phthalate	ug/kg	4400000	10000000	10000000	10000000/5	<4600	<3800	<5300	<3800	<3,800	<3900
Fluoranthene	ug/kg	8800000	110000000	190000000	3200000/10	700 J	<3800	<5300	700 J	2000 J	ND
Fluorene	ug/kg	8800000	110000000	190000000	3000000/15	<4600	<3800	<5300	<3800	<3,800	<3900
Hexachlorobenzene	ug/kg	11000	50000	190000000	960/15	<4600	<3800	<5300	<3800	<3,800	<3900
Hexachlorobutadiene	ug/kg	44000	560000	10000000	1200/15	<4600	<3800	<5300	<3800	<3,800	<3900
Hexachlorocyclopentadiene	ug/kg	1300000	10000000	10000000	91000/15	<4600	<3800	<5300	<3800	<3,800	<3900
Hexachloroethane	ug/kg	220000	2800000	190000000	560/15	<4600	<3800	<5300	<3800	<3,800	<3900
Indeno (1,2,3-cd) pyrene	ug/kg	25000	110000	190000000	7000000/5	500 J	<3800	<5300	700 J	1000 J	700 J
Isophorone	ug/kg	10000000	10000000	10000000	10000/NA	<4600	<3800	<5300	<3800	<3,800	<3900
2-Methylnaphthalene	ug/kg	4400000	10000000	10000000	2900000/15	2000 J	<3800	<5300	1000 J	2000 J	1000 J
2-Methylphenol	ug/kg	10000000	10000000	10000000	180000/NA	<4600	<3800	<5300	<3800	500 J	<3900
4-Methylphenol	ug/kg	10000000	10000000	10000000	180000/NA	<4600	<3800	<5300	<3800	600 J	<3900
Naphthalene	ug/kg	4400000	56000000	190000000	25000/30	1000 J	<3800	<5300	1000 J	2000 J	900 J
2-Nitroaniline	ug/kg	13000	160000	190000000	210/NA	<4600	<3800	<5300	<3800	<3,800	<3900
3-Nitroaniline	ug/kg	13000	160000	190000000	210/NA	<4600	<3800	<5300	<3800	<3,800	<3900
4-Nitroaniline	ug/kg	13000	160000	190000000	210/NA	<4600	<3800	<5300	<3800	<3,800	<3900
Nitrobenzene	ug/kg	110000	1400000	10000000	1800/NA	<4600	<3800	<5300	<3800	<3,800	<3900
2-Nitrophenol	ug/kg	1800000	22000000	190000000	29000/NA	<4600	<3800	<5300	<3800	<3,800	<3900
4-Nitrophenol	ug/kg	1800000	22000000	190000000	6000/NA	<4600	<3800	<5300	<3800	<3,800	<3900
N-Nitrosodi-n-propylamine	ug/kg	2600	11000	10000000	9.4/NA	**<4600**	**<3800**	**<5300**	**<3800**	**<3,800**	**<3900**

J - Analyte detected below quantitation limits.

NS - No Sample

Table 3:
Semi- VOCs in Soils
Former Gibble's Quarry
Borough of Manheim, Lancaster County, Pennsylvania

Analyte	Units	Direct Contact Residential MSCs 0-15'	Direct Contact Non-Res. MSCs Surface Soil 0-2'	Direct Contact Non-Res. MSCs Subsurface Soil 2-15'	MSCs Soil to GrouNSwater Conc. / Buffer in Ft.	S7(1'-5') 9/11/2003	S8(4'-8') 9/11/2003	S9(4'-6') 9/11/2003	S10(4'-8') 9/11/2003	S11(5'-8') 9/11/2003	S12(1'-5') 9/11/2003
N-Nitrosodiphenylamine	ug/kg	3700000	16000000	190000000	20000/30	<4600	<3800	<5300	<3800	<3,800	<3900
Pentachlorophenol	ug/kg	150000	660000	190000000	5000/10	<4600	<3800	<5300	<3800	<3,800	<3900
Phenanthrene	ug/kg	66000000	190000000	190000000	10000000/10	2000 J	<3800	<5300	2000 J	4800	1000 J
Phenol	ug/kg	130000000	190000000	190000000	400000/NA	<4600	<3800	<5300	<3800	<3,800	<3900
Pyrene	ug/kg	6600000	84000000	190000000	2200000/10	2000 J	<3800	800 J	4000 J	7000	3000
1,2,4-Trichlorobenzene	ug/kg	2200000	10000000	10000000	27000/20	<4600	<3800	<5300	<3800	<3,800	<3900
2,4,5-Trichlorophenol	ug/kg	22000000	190000000	190000000	2300000/15	<4600	<3800	<5300	<3800	<3,800	<3900
2,4,6-Trichlorophenol	ug/kg	66000	840000	190000000	3100/20	<4600	<3800	<5300	<3800	<3,800	<3900

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Analyte	Units	Direct Contact Residential MSCs 0-15'	Direct Contact Non-Res. MSCs Surface Soil 0-2'	Direct Contact Non-Res. MSCs Subsurface Soil 2-15'	MSCs Soil to GrouNSwater Conc. / Buffer in Ft.	S13(1'-5') 9/11/2003	S14(5'-10') 9/11/2003	S15(5'-10') 9/11/2003	S16(5'-10') 9/11/2003	S17(1'-5') 11/26/2003	S18(1'-5') 11/26/2003
Acenaphthene	ug/kg	13000000	170000000	190000000	2700000/15	<3600	400 J	<4000	600 J	<1900	<1900
Acenaphthylene	ug/kg	13000000	170000000	190000000	2500000/15	<3600	<3900	<4000	<3900	<1900	<1900
Aniline	ug/kg	19000	53000	60000	280/NA	<3600	<3900	<4000	<3900	<1900	<1900
Anthracene	ug/kg	66000	190000000	190000000	350/10	<3600	<3900	<4000	<3900	<1900	<1900
Benzoic acid	ug/kg	190000000	190000000	190000000	15000000/NA	ND	ND	ND	ND	ND	ND
Benz (a) anthracene	ug/kg	25000	110000	190000000	79000/5	2000 J	6500	5200	13000	300 J	<1900
Benzo (a) pyrene	ug/kg	2500	11000	190000000	46000/5	**3000 J**	**8,700**	**7,200**	**16,000**	200 J	300 J
Benzo (b) fluoranthene	ug/kg	25000	110000	190000000	120000/5	3000 J	5800	4700	9700	200 J	400 J
Benzo (g,h,i) perylene	ug/kg	13000000	170000000	190000000	180000/5	3000 J	4100	4000 J	7400	200 J	400 J
Benzo (k) fluoranthene	ug/kg	25000	110000	190000000	610000/5	2000 J	3000	2000 J	3000 J	<1900	300 J
Benzyl alcohol	ug/kg	10000000	10000000	10000000	1100000/NA	ND	ND	ND	ND	ND	ND
Bis(2-chloroethoxy)methane	ug/kg	NA				<3600	<3900	<4000	<3900	<1900	<1900
Bis(2-chloroethyl)ether	ug/kg	960	5000	5700	13/NA	**<3600**	**<3900**	**<4000**	**<3900**	**<1900**	**<1900**
Bis(2-chloroisopropyl)ether	ug/kg	32000	160000	190000	30000/NA	<3600	<3900	<4000	<3900	<1900	<1900
Bis(2-ethylhexyl)phthalate	ug/kg	1300000	5700000	10000000	130000/10	<3600	600 J	<4000	<3900	<1900	<1900
4-Bromophenyl phenyl ether	ug/kg	NA				<3600	<3900	<4000	<3900	<1900	<1900
Butyl benzyl phthalate	ug/kg	10000000	10000000	10000000	10000000/10	<3600	<3900	<4000	<3900	<1900	<1900
4-Chloroaniline	ug/kg	880000	11000000	190000000	19000/NA	<3600	<3900	<4000	<3900	<1900	<1900
4-Chloro-3-methylphenol	ug/kg	1100000	14000000	190000000	37000/30	<3600	<3900	<4000	<3900	<1900	<1900
2-Chloronaphthalene	ug/kg	18000	190000000	190000000	6200000/15	<3600	<3900	<4000	<3900	**<1900**	**<1900**
2-Chlorophenol	ug/kg	330000	920000	1100000	4400/NA	<3600	<3900	<4000	<3900	<1900	<1900
4-Chlorophenyl phenyl ether	ug/kg	NA				<3600	<3900	<4000	<3900	<1900	<1900
Chrysene	ug/kg	2500000	11000000	190000000	230000/5	3000 J	11000	9100	24000	200 J	200 J
Dibenz (a,h) anthracene	ug/kg	2500	11000	190000000	41000/5	<3600	<3900	<4000	2000 J	<1900	<1900
Dibenzofuran	ug/kg	NA				<3600	600 J	400 J	500 J	<1900	<1900
1,2-Dichlorobenzene	ug/kg	3800000	10000000	10000000	60000/NA	<3600	<3900	<4000	<3900	<1900	<1900
1,3-Dichlorobenzene	ug/kg	6600000	10000000	10000000	61000/NA	<3600	<3900	<4000	<3900	<1900	<1900
1,4-Dichlorobenzene	ug/kg	750000	3300000	190000000	10000/30	<3600	<3900	<4000	<3900	<1900	<1900
3,3'-Dichlorobenzidine	ug/kg	40000	180000	190000000	8300/10	<11000	<12000	<12000	<12000	<5800	<5600

J - Analyte detected below quantitation limits.

NS - No Sample

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Semi- VOCs in Soils
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Borough of Manheim, Lancaster County, Pennsylvania

Analyte	Units	Direct Contact Residential MSCs 0-15'	Direct Contact Non-Res. MSCs Surface Soil 0-2'	Direct Contact Non-Res. MSCs Subsurface Soil 2-15'	MSCs Soil to GrouNSwater Conc. / Buffer in Ft.	S13(1'-5') 9/11/2003	S14(5'-10') 9/11/2003	S15(5'-10') 9/11/2003	S16(5'-10') 9/11/2003	S17(1'-5') 11/26/2003	S18(1'-5') 11/26/2003
2,4-Dichlorophenol	ug/kg	660000	8400000	190000000	2000/NA	<3600	<3900	<4000	<3900	<1900	<1900
Diethyl phthalate	ug/kg	10000000	10000000	10000000	500000/NA	<3600	<3900	<4000	<3900	<1900	<1900
2,4-Dimethylphenol	ug/kg	4400000	10000000	10000000	73000/NA	<3600	1000 J	1000 J	600 J	<1900	<1900
Dimethyl phthalate	ug/kg	NA				<3600	<3900	<4000	<3900	<1900	<1900
Di-n-butyl phthalate	ug/kg	10000000	10000000	10000000	1500000/20	<3600	<3900	<4000	<3900	<1900	<1900
4,6-Dinitro-2-methylphenol	ug/kg	NA				<3600	<3900	<4000	<3900	<1900	<1900
2,4-Dinitrophenol	ug/kg	440000	5600000	190000000	1900/NA	<3600	<3900	<4000	<3900	<1900	<1900
2,4-Dinitrotoluene	ug/kg	58000	260000	190000000	210/NA	<3600	<3900	<4000	<3900	<1900	<1900
2,6-Dinitrotoluene	ug/kg	220000	2800000	190000000	3700/NA	<3600	<3900	<4000	<3900	<1900	<1900
Di-n-octyl phthalate	ug/kg	4400000	10000000	10000000	10000000/5	<3600	<3900	<4000	<3900	<1900	<1900
Fluoranthene	ug/kg	8800000	110000000	190000000	3200000/10	1000 J	2000 J	2000 J	2000 J	200 J	<1900
Fluorene	ug/kg	8800000	110000000	190000000	3000000/15	<3600	500 J	<4000	<3900	<1900	<1900
Hexachlorobenzene	ug/kg	11000	50000	190000000	960/15	<3600	<3900	<4000	<3900	<1900	<1900
Hexachlorobutadiene	ug/kg	44000	560000	10000000	1200/15	<3600	<3900	<4000	<3900	<1900	<1900
Hexachlorocyclopentadiene	ug/kg	1300000	10000000	10000000	91000/15	<3600	<3900	<4000	<3900	<1900	<1900
Hexachloroethane	ug/kg	220000	2800000	190000000	560/15	<3600	<3900	<4000	<3900	<1900	<1900
Indeno (1,2,3-cd) pyrene	ug/kg	25000	110000	190000000	7000000/5	2000 J	2000 J	2000 J	3000 J	<1900	300 J
Isophorone	ug/kg	10000000	10000000	10000000	10000/NA	<3600	<3900	<4000	<3900	<1900	<1900
2-Methylnaphthalene	ug/kg	4400000	10000000	10000000	2900000/15	<3600	2000 J	2000 J	2000 J	<1900	<1900
2-Methylphenol	ug/kg	10000000	10000000	10000000	180000/NA	<3600	500 J	400 J	<3900	<1900	<1900
4-Methylphenol	ug/kg	10000000	10000000	10000000	180000/NA	<3600	<3900	<4000	<3900	<1900	<1900
Naphthalene	ug/kg	4400000	56000000	190000000	25000/30	<3600	2000 J	2000 J	2000 J	<1900	<1900
2-Nitroaniline	ug/kg	13000	160000	190000000	210/NA	<3600	<3900	<4000	<3900	<1900	<1900
3-Nitroaniline	ug/kg	13000	160000	190000000	210/NA	<3600	<3900	<4000	<3900	<1900	<1900
4-Nitroaniline	ug/kg	13000	160000	190000000	210/NA	<3600	<3900	<4000	<3900	<1900	<1900
Nitrobenzene	ug/kg	110000	1400000	10000000	1800/NA	<3600	<3900	<4000	<3900	<1900	<1900
2-Nitrophenol	ug/kg	1800000	22000000	190000000	29000/NA	<3600	<3900	<4000	<3900	<1900	<1900
4-Nitrophenol	ug/kg	1800000	22000000	190000000	6000/NA	<3600	<3900	<4000	<3900	<1900	<1900
N-Nitrosodi-n-propylamine	ug/kg	2600	11000	10000000	9.4/NA	**<3600**	**<3900**	**<4000**	**<3900**	<1900	<1900

J - Analyte detected below quantitation limits.

NS - No Sample

Table 3:
Semi- VOCs in Soils
Former Gibble's Quarry
Borough of Manheim, Lancaster County, Pennsylvania

Analyte	Units	Direct Contact Residential MSCs 0-15'	Direct Contact Non-Res. MSCs Surface Soil 0-2'	Direct Contact Non-Res. MSCs Subsurface Soil 2-15'	MSCs Soil to GrouNSwater Conc. / Buffer in Ft.	S13(1'-5') 9/11/2003	S14(5'-10') 9/11/2003	S15(5'-10') 9/11/2003	S16(5'-10') 9/11/2003	S17(1'-5') 11/26/2003	S18(1'-5') 11/26/2003
N-Nitrosodiphenylamine	ug/kg	3700000	16000000	190000000	20000/30	<3600	<3900	<4000	<3900	<1900	<1900
Pentachlorophenol	ug/kg	150000	660000	190000000	5000/10	<3600	<3900	<4000	<3900	<1900	<1900
Phenanthrene	ug/kg	66000000	190000000	190000000	10000000/10	800 J	3000 J	2000 J	4100	200 J	<1900
Phenol	ug/kg	130000000	190000000	190000000	400000/NA	<3600	<3900	<4000	<3900	<1900	<1900
Pyrene	ug/kg	6600000	84000000	190000000	2200000/10	2000 J	8100	5900	16000	200 J	<1900
1,2,4-Trichlorobenzene	ug/kg	2200000	10000000	10000000	27000/20	<3600	<3900	<4000	<3900	<1900	<1900
2,4,5-Trichlorophenol	ug/kg	22000000	190000000	190000000	2300000/15	<3600	<3900	<4000	<3900	<1900	<1900
2,4,6-Trichlorophenol	ug/kg	66000	840000	190000000	3100/20	<3600	<3900	<4000	<3900	<1900	<1900

J - Analyte detected below quantitation limits.
NS - No Sample

Table 3:
Semi- VOCs in Soils
Former Gibble's Quarry
Borough of Manheim, Lancaster County, Pennsylvania

Analyte	Units	Direct Contact Residential MSCs 0-15'	Direct Contact Non-Res. MSCs Surface Soil 0-2'	Direct Contact Non-Res. MSCs Subsurface Soil 2-15'	MSCs Soil to GrouNSwater Conc. / Buffer in Ft.	S19(1'-5') 11/26/2003	S20(1'-5') 11/26/2003	S21(1'-5') 11/26/2003	S22(1'-5') 11/26/2003
Acenaphthene	ug/kg	13000000	170000000	190000000	2700000/15	<1900	<1900	ND	ND
Acenaphthylene	ug/kg	13000000	170000000	190000000	2500000/15	<1900	<1900	ND	ND
Aniline	ug/kg	19000	53000	60000	280/NA	<1900	<1900	ND	ND
Anthracene	ug/kg	66000	190000000	190000000	350/10	<1900	<1900	ND	ND
Benzoic acid	ug/kg	190000000	190000000	190000000	15000000/NA	ND	ND	ND	ND
Benz (a) anthracene	ug/kg	25000	110000	190000000	79000/5	<1900	500 J	2090	285
Benzo (a) pyrene	ug/kg	2500	11000	190000000	46000/5	400 J	800 J	**2,980**	389
Benzo (b) fluoranthene	ug/kg	25000	110000	190000000	120000/5	300 J	600 J	3630	659
Benzo (g,h,i) perylene	ug/kg	13000000	170000000	190000000	180000/5	300 J	800 J	1570	187
Benzo (k) fluoranthene	ug/kg	25000	110000	190000000	610000/5	200 J	300 J	1150	311
Benzyl alcohol	ug/kg	10000000	10000000	10000000	1100000/NA	ND	ND	ND	ND
Bis(2-chloroethoxy)methane	ug/kg	NA				<1900	<1900	ND	ND
Bis(2-chloroethyl)ether	ug/kg	960	5000	5700	13/NA	**<1900**	**<1900**	ND	ND
Bis(2-chloroisopropyl)ether	ug/kg	32000	160000	190000	30000/NA	<1900	<1900	ND	ND
Bis(2-ethylhexyl)phthalate	ug/kg	1300000	5700000	10000000	130000/10	<1900	<1900	ND	ND
4-Bromophenyl phenyl ether	ug/kg	NA				<1900	<1900	ND	ND
Butyl benzyl phthalate	ug/kg	10000000	10000000	10000000	10000000/10	<1900	<1900	ND	ND
4-Chloroaniline	ug/kg	880000	11000000	190000000	19000/NA	<1900	<1900	ND	ND
4-Chloro-3-methylphenol	ug/kg	1100000	14000000	190000000	37000/30	<1900	<1900	ND	ND
2-Chloronaphthalene	ug/kg	18000	190000000	190000000	6200000/15	**<1900**	**<1900**	ND	ND
2-Chlorophenol	ug/kg	330000	920000	1100000	4400/NA	<1900	<1900	ND	ND
4-Chlorophenyl phenyl ether	ug/kg	NA				<1900	<1900	ND	ND
Chrysene	ug/kg	2500000	11000000	190000000	230000/5	300 J	900 J	3690	371
Dibenz (a,h) anthracene	ug/kg	2500	11000	190000000	41000/5	<1900	<1900	372	ND
Dibenzofuran	ug/kg	NA				<1900	<1900	ND	ND
1,2-Dichlorobenzene	ug/kg	3800000	10000000	10000000	60000/NA	<1900	<1900	ND	ND
1,3-Dichlorobenzene	ug/kg	6600000	10000000	10000000	61000/NA	<1900	<1900	ND	ND
1,4-Dichlorobenzene	ug/kg	750000	3300000	190000000	10000/30	<1900	<1900	ND	ND
3,3'-Dichlorobenzidine	ug/kg	40000	180000	190000000	8300/10	<5700	<5600	ND	ND

J - Analyte detected below quantitation limits.
NS - No Sample

Table 3:
Semi- VOCs in Soils
Former Gibble's Quarry
Borough of Manheim, Lancaster County, Pennsylvania

Analyte	Units	Direct Contact Residential MSCs 0-15'	Direct Contact Non-Res. MSCs Surface Soil 0-2'	Direct Contact Non-Res. MSCs Subsurface Soil 2-15'	MSCs Soil to GrouNSwater Conc. / Buffer in Ft.	S19(1'-5') 11/26/2003	S20(1'-5') 11/26/2003	S21(1'-5') 11/26/2003	S22(1'-5') 11/26/2003
2,4-Dichlorophenol	ug/kg	660000	8400000	190000000	2000/NA	<1900	<1900	ND	ND
Diethyl phthalate	ug/kg	10000000	10000000	10000000	500000/NA	<1900	<1900	ND	ND
2,4-Dimethylphenol	ug/kg	4400000	10000000	10000000	73000/NA	<1900	<1900	ND	ND
Dimethyl phthalate	ug/kg	NA				<1900	<1900	ND	ND
Di-n-butyl phthalate	ug/kg	10000000	10000000	10000000	1500000/20	<1900	<1900	ND	ND
4,6-Dinitro-2-methylphenol	ug/kg	NA				<1900	<1900	ND	ND
2,4-Dinitrophenol	ug/kg	440000	5600000	190000000	1900/NA	<1900	<1900	ND	ND
2,4-Dinitrotoluene	ug/kg	58000	260000	190000000	210/NA	<1900	<1900	ND	ND
2,6-Dinitrotoluene	ug/kg	220000	2800000	190000000	3700/NA	<1900	<1900	ND	ND
Di-n-octyl phthalate	ug/kg	4400000	10000000	10000000	10000000/5	<1900	<1900	ND	ND
Fluoranthene	ug/kg	8800000	110000000	190000000	3200000/10	<1900	200 J	862	383
Fluorene	ug/kg	8800000	110000000	190000000	3000000/15	<1900	<1900	ND	ND
Hexachlorobenzene	ug/kg	11000	50000	190000000	960/15	<1900	<1900	ND	ND
Hexachlorobutadiene	ug/kg	44000	560000	10000000	1200/15	<1900	<1900	ND	ND
Hexachlorocyclopentadiene	ug/kg	1300000	10000000	10000000	91000/15	<1900	<1900	ND	ND
Hexachloroethane	ug/kg	220000	2800000	190000000	560/15	<1900	<1900	ND	ND
Indeno (1,2,3-cd) pyrene	ug/kg	25000	110000	190000000	7000000/5	200 J	500 J	855	149
Isophorone	ug/kg	10000000	10000000	10000000	10000/NA	<1900	<1900	ND	ND
2-Methylnaphthalene	ug/kg	4400000	10000000	10000000	2900000/15	<1900	<1900	772	ND
2-Methylphenol	ug/kg	10000000	10000000	10000000	180000/NA	<1900	400 J	ND	ND
4-Methylphenol	ug/kg	10000000	10000000	10000000	180000/NA	<1900	<1900	518	ND
Naphthalene	ug/kg	4400000	56000000	190000000	25000/30	<1900	300 J	ND	ND
2-Nitroaniline	ug/kg	13000	160000	190000000	210/NA	<1900	<1900	ND	ND
3-Nitroaniline	ug/kg	13000	160000	190000000	210/NA	<1900	<1900	ND	ND
4-Nitroaniline	ug/kg	13000	160000	190000000	210/NA	<1900	<1900	ND	ND
Nitrobenzene	ug/kg	110000	1400000	10000000	1800/NA	<1900	<1900	ND	ND
2-Nitrophenol	ug/kg	1800000	22000000	190000000	29000/NA	<1900	<1900	ND	ND
4-Nitrophenol	ug/kg	1800000	22000000	190000000	6000/NA	<1900	<1900	ND	ND
N-Nitrosodi-n-propylamine	ug/kg	2600	11000	10000000	9.4/NA	<1900	<1900	ND	ND

J - Analyte detected below quantitation limits.

NS - No Sample

Table 3:
Semi- VOCs in Soils
Former Gibble's Quarry
Borough of Manheim, Lancaster County, Pennsylvania

Analyte	Units	Direct Contact Residential MSCs 0-15'	Direct Contact Non-Res. MSCs Surface Soil 0-2'	Direct Contact Non-Res. MSCs Subsurface Soil 2-15'	MSCs Soil to GrouNSwater Conc. / Buffer in Ft.	S19(1'-5') 11/26/2003	S20(1'-5') 11/26/2003	S21(1'-5') 11/26/2003	S22(1'-5') 11/26/2003
N-Nitrosodiphenylamine	ug/kg	3700000	16000000	190000000	20000/30	<1900	<1900	ND	ND
Pentachlorophenol	ug/kg	150000	660000	190000000	5000/10	<1900	<1900	ND	ND
Phenanthrene	ug/kg	66000000	190000000	190000000	10000000/10	<1900	400 J	1280	210
Phenol	ug/kg	130000000	190000000	190000000	400000/NA	<1900	<1900	ND	ND
Pyrene	ug/kg	6600000	84000000	190000000	2200000/10	200 J	600 J	2570	465
1,2,4-Trichlorobenzene	ug/kg	2200000	10000000	10000000	27000/20	<1900	<1900	ND	ND
2,4,5-Trichlorophenol	ug/kg	22000000	190000000	190000000	2300000/15	<1900	<1900	ND	ND
2,4,6-Trichlorophenol	ug/kg	66000	840000	190000000	3100/20	<1900	<1900	ND	ND

J - Analyte detected below quantitation limits.
NS - No Sample

Table 4:
PCBs in Soils
Former Gibble's Quarry
Borough of Manheim, Lancaster County, Pennsylvania

Analyte	Units	Direct Contact Residential MSCs 0-15'	Direct Contact Non-Res. MSCs Surface Soil 0-2'	Direct Contact Non-Res. MSCs Subsurface Soil 2-15'	MSCs Soil to Groundwater Conc. / Buffer in Ft.	S1(8'-12') 7/19/2003	S2(5'-10') 7/19/2003	S3(5'10) 7/19/2003	S4(5'-10') 7/19/2003	S5(5'-10') 7/19/2003	S6(6'-10') 7/19/2003
PCB-1016	ug/kg	15000	200000	10000000		<37	<51	<38	<39	<39	<38
PCB-1221	ug/kg					<37	<51	<38	<39	<39	<38
PCB-1232	ug/kg					<37	<51	<38	<39	<39	<38
PCB-1242	ug/kg					260	<51	<38	<39	<39	<38
PCB-1248	ug/kg					<37	210	<38	30 J	<39	100
PCB-1254	ug/kg	4400	44000	10000000	75000 / 10	<37	<51	<38	<39	<39	<38
PCB-1260	ug/kg	30000	130000	190000000	500000 / 5	<37	<51	<38	<39	<39	78
PCB-1262	ug/kg					ND	ND	ND	ND	ND	ND

J - Analyte detected below quantitation limits.
ND - Analyte not detected.

Table 4:
PCBs in Soils
Former Gibble's Quarry
Borough of Manheim, Lancaster County, Pennsylvania

Analyte	Units	Direct Contact Residential MSCs 0-15'	Direct Contact Non-Res. MSCs Surface Soil 0-2'	Direct Contact Non-Res. MSCs Subsurface Soil 2-15'	MSCs Soil to Groundwater Conc. / Buffer in Ft.	S7(6'-10') 9/11/2003	S8(4'-8') 9/11/2003	S9(4'-6') 9/11/2003	S10(4'-8') 9/11/2003	S11(5'-8') 9/11/2003	S12(1'-5') 9/11/2003
PCB-1016	ug/kg	15000	200000	10000000		<46	<38	<53	<38	<38	<39
PCB-1221	ug/kg					<46	<38	<53	<38	<38	<39
PCB-1232	ug/kg					<46	<38	<53	<38	<38	<39
PCB-1242	ug/kg					140	<38	<53	43	52	<39
PCB-1248	ug/kg					<46	<38	160	<38	<38	<39
PCB-1254	ug/kg	4400	44000	10000000	75000 / 10	<46	<38	<53	<38	<38	<39
PCB-1260	ug/kg	30000	130000	190000000	500000 / 5	<46	<38	<53	<38	<38	<39
PCB-1262	ug/kg					<46	<38	440	<38	<38	<39

J - Analyte detected below quantitation limits.
ND - Analyte not detected.

Table 4:
PCBs in Soils
Former Gibble's Quarry
Borough of Manheim, Lancaster County, Pennsylvania

Analyte	Units	Direct Contact Residential MSCs 0-15'	Direct Contact Non-Res. MSCs Surface Soil 0-2'	Direct Contact Non-Res. MSCs Subsurface Soil 2-15'	MSCs Soil to Groundwater Conc. / Buffer in Ft.	S13(1'-5') 9/11/2003	S14(5'-10') 9/11/2003	S15(5'-10') 9/11/2003	S16(5'-10') 9/11/2003	S17(1'-5') 11/26/2003	S18(1'-5') 11/26/2003
PCB-1016	ug/kg	15000	200000	10000000		<36	<39	<40	<39	<38	<37
PCB-1221	ug/kg					<36	<39	<40	<39	<38	<37
PCB-1232	ug/kg					<36	<39	<40	<39	<38	<37
PCB-1242	ug/kg					<36	290	85	<39	<38	<37
PCB-1248	ug/kg					<36	<39	<40	<39	110	49
PCB-1254	ug/kg	4400	44000	10000000	75000 / 10	<36	<39	<40	<39	<38	<37
PCB-1260	ug/kg	30000	130000	190000000	500000 / 5	<36	<39	<40	<39	<38	<37
PCB-1262	ug/kg					<36	<39	<40	ND	ND	ND

J - Analyte detected below quantitation limits.
ND - Analyte not detected.

Table 4:
PCBs in Soils
Former Gibble's Quarry
Borough of Manheim, Lancaster County, Pennsylvania

Analyte	Units	Direct Contact Residential MSCs 0-15'	Direct Contact Non-Res. MSCs Surface Soil 0-2'	Direct Contact Non-Res. MSCs Subsurface Soil 2-15'	MSCs Soil to Groundwater Conc. / Buffer in Ft.	S19(1'-5') 11/26/2003	S20(1'-5') 11/26/2003	S21(1'-5') 5/14/2004	S22(1'-5') 5/14/2004
PCB-1016	ug/kg	15000	200000	10000000		<38	<37	<37	<34
PCB-1221	ug/kg					<38	<37	<37	<34
PCB-1232	ug/kg					<38	<37	<37	<34
PCB-1242	ug/kg					<38	830	<37	<34
PCB-1248	ug/kg					30 J	<37	<37	<34
PCB-1254	ug/kg	4400	44000	10000000	75000 / 10	<38	<37	<37	<34
PCB-1260	ug/kg	30000	130000	190000000	500000 / 5	<38	<37	<37	<34
PCB-1262	ug/kg					ND	ND	ND	ND

J - Analyte detected below quantitation limits.
ND - Analyte not detected.

Table 5: GROUNDWATER ANALYTICAL RESULTS - VOCs
FORMER GIBBLES'S QUARRY
BOROUGH OF MANHEIM, LANCASTER COUNTY, PENNSYLVANIA
Samples Collected on 11-5-2003

Analyte	Units	MSCs Used Aquifer Residential	USCs Used Aquifer Non Residential	MW 1 (W1)	MW2 (W2)	MW3 (W3)	MW1 (W4)	Trip Blank	MW2 (W5)	MW3 (W6)	MW4 (W4)
Acrolein				ND	ND	ND	ND		ND	ND	ND
1,1,1-Trichloroethane	ug/l	200	200	<5	<5	<5	<1		<1	<1	<1
1,1,2,2-Tetrachloroethane	ug/l	0.3	0.3	<5	<5	<5	<1		<1	<1	<1
1,1,2-Trichloroethane	ug/l	5	5	<5	<5	<5	<1		<1	<1	<1
1,1-Dichloroethane	ug/l	27	110	<5	<5	<5	<1		<1	<1	<1
1,1-Dichloroethene	ug/l	7	7	<5	<5	<5	<1		<1	<1	<1
1,2-Dichlorobenzene	ug/l			<5	<5	<5	ND		ND	ND	ND
1,2-Dichloroethane	ug/l	5	5	<10	<5	<5	<1		<1	<1	<1
1,2-Dichloropropane	ug/l	5	5	<5	<5	<5	<1		<1	<1	<1
1,3-Dichlorobenzene	ug/l			<5	<5	<5	ND		ND	ND	ND
1,4-Dichlorobenzene	ug/l			<5	<5	<5	ND		ND	ND	ND
2-Chloroethyl vinyl ether	ug/l						ND		ND	ND	ND
Acrylonitrile	ug/l						ND		ND	ND	ND
Chlorobenzene	ug/l	100	100	<5	<5	<5	<1		<1	<1	<1
Chlorodibromomethane	ug/l	230	900	ND	ND	ND	ND		ND	ND	ND
Chloroethane	ug/l	100	100	<10	<10	<10	<1		<1	<1	<1
Chloroform	ug/l			<5	<5	<5	<1		<1	<1	<1
Chloromethane	ug/l			<10	<10	<10	<1		<1	<1	<1
1,3-Dichloropropene (cis + trans)	ug/l			<5	<5	<5	<1		<1	<1	<1
Dibromochloromethane	ug/l			<5	<5	<5	ND		ND	ND	ND
Ethylbenzene	ug/l	700	700	<5	<5	<5	<1		<1	<1	<1
Methylene chloride	ug/l	3	3	<5	<5	<5	<1		<1	<1	<1
Tetrachloroethene	ug/l	5	5	<5	5.3	<5	<1		<1	<1	<1
Toluene	ug/l	1000	1000	<5	<5	<5	<1		<1	<1	<1
trans-1,3-Dichloropropene	ug/l			<5		<5	<1		<1	<1	<1
trans-1,2-Dichloroethene	ug/l	100	100	<5	<5	<5	<1		<1	<1	<1
Trichloroethene	ug/l	5	5	<5	<5	<5	<1		<1	<1	<1
Trichlorofluoromethane	ug/l			ND	ND	ND	ND		ND	ND	ND
Vinyl chloride	ug/l	2	2	<2	<2	<2	<1		<1	<1	<1
2-Butanone	ug/l	2800	5800	<25	<25	<25	<10		<10	<10	<10
2-Hexanone	ug/l			ND	<5	<5	<10		<10	<10	<10
4-Methyl-2-pentanone	ug/l	190	410	<25	<25	<25	<4		<4	<4	<4

J - Analyte detected below quantitation limits.
ND - Analyte not detected

Table 5: GROUNDWATER ANALYTICAL RESULTS - VOCs
FORMER GIBBLES'S QUARRY
BOROUGH OF MANHEIM, LANCASTER COUNTY, PENNSYLVANIA
Samples Collected on 11-5-2003

Analyte	Units	MSCs Used Aquifer Residential	USCs Used Aquifer Non Residential	MW 1 (W1)	MW2 (W2)	MW3 (W3)	MW1 (W4)	Trip Blank	MW2 (W5)	MW3 (W6)	MW4 (W4)
Acetone	ug/l	3700	10000	<25	<25	<25	<10		<10	<10	<10
Carbon disulfide	ug/l	1900	4100	<5	<5	<5	<1		<1	<1	<1
cis-1,2-Dichloroethene	ug/l	70	70	<5	<5	<5	<1		<1	<1	<1
Methyl tert-butyl ether	ug/l	20	20	<5	<5	<5	ND		ND	ND	ND
Styrene	ug/l	100	100	<5	<5	<5	<1		<1	<1	<1
Vinyl acetate	ug/l			ND	ND	ND	ND		ND	ND	ND
Total Xylenes	ug/l	10000	10000	<15	<15	<15	<3		<3	<3	<3

J - Analyte detected below quantitation limits.
ND - Analyte not detected

Table 6: GROUNDWATER ANALYTICAL RESULTS - SVOCs
FORMER GIBBLES'S QUARRY
BOROUGH OF MANHEIM, LANCASTER COUNTY, PENNSYLVANIA
Samples Collected on 11-5-2003

Analyte	Units	MSCs Used Aquifer Residential	MSCs Used Aquifer Non Residential	MW1 (W1)	MW2 (W2)	MW3 (W3)	MW1 (W4)	MW2 (W5)	MW3 (W6)	MW4 (W7)	Trip Blank
1,2,4-Trichlorobenzene	ug/l	70	70	<11	<10	<10	<5	<5	<5	<5	
1,2-Dichlorobenzene	ug/l	600	600	<11	<10	<10	<5	<5	<5	<5	
1,2-Diphenylhydrazine	ug/l			<11	<10	<10	ND	ND	ND	ND	
1,3-Dichlorobenzene	ug/l	600	600	<11	<10	<10	<5	<5	<5	<5	
1,4-Dichlorobenzene	ug/l			<11	<10	<10	<5	<5	<5	<5	
2,4,6-Trichlorophenol	ug/l	11	31	<11	<10	<10	<11	<11	<10	<10	
2,4-Dichlorophenol	ug/l	20	20	<11	<10	<10	<11	<11	<10	<10	
2,4-Dimethylphenol	ug/l	730	2000	<11	<10	<10	<11	<11	<10	<10	
2,4-Dinitrophenol	ug/l	19	41	<11	<10	<10	<26	<27	<26	<26	
2,4-Dinitrotoluene	ug/l	2.1	8.4	<11	<10	<10	<2	<2	<2	<2	
2,6-Dinitrotoluene	ug/l	37	100	<11	<10	<10	<2	<2	<2	<2	
2-Chloronaphthalene	ug/l	2900	8200	<11	<10	<10	<5	<5	<5	<5	
2-Chlorophenol	ug/l	40	40	<11	<10	<10	<11	<11	<10	<10	
4-Chlorophenyl phenyl ether	ug/l			<11	<10	<10	<5	<5	<5	<5	
4-Nitrophenol	ug/l	60	60	<11	<10	<10	ND	ND	ND	ND	
Acenaphthene	ug/l	2200	3800	<11	<10	<10	<3	<3	<3	<3	
Acenaphthylene	ug/l	2200	6100	<11	<10	<10	<3	<3	<3	<3	
Anthracene	ug/l	66	66	<11	<10	<10	<3	<3	<3	<3	
Benzidine	ug/l	0.0029	0.011	<11	<10	<10	ND	ND	ND	ND	
Benzo (a) anthracene	ug/l	0.9	3.6	<11	<10	<10	<2	<2	<2	<2	
Benzo (a) pyrene	ug/l	0.2	0.2	<11	<10	<10	<2	<2	<2	<2	
Benzo (b) fluoranthene	ug/l	0.9	1.2	<11	<10	<10	<2	<2	<2	<2	
Benzo (g,h,i) perylene	ug/l	0.26	0.26	<11	<10	<10	<2	<2	<2	<2	
Benzo (k) fluoranthene	ug/l	0.55	0.55	<11	<10	<10	<5	<5	<5	<5	
Bis(2-chloroethoxy)methane	ug/l			<11	<10	<10	<3	<3	<3	<3	
Bis(2-chloroethyl)ether	ug/l	0.13	0.55	<11	<10	<10	<3	<3	<3	<3	
Bis(2-chloroisopropyl)ether	ug/l	0.3	300	<11	<10	<10	<2	<2	<2	<2	
Bis(2-ethylhexyl)phthalate	ug/l	6	6	<11	<10	<10	ND	ND	ND	ND	
Butyl benzyl phthalate	ug/l	2700	2700	<11	<10	<10	<5	<5	<5	<5	
Chrysene	ug/l	1.9	1.9	<11	<10	<10	<2	<2	<2	<2	

J - Analyte detected below quantitation limits.
ND - Analyte not detected.

Table 6: GROUNDWATER ANALYTICAL RESULTS - SVOCs
FORMER GIBBLES'S QUARRY
BOROUGH OF MANHEIM, LANCASTER COUNTY, PENNSYLVANIA
Samples Collected on 11-5-2003

Analyte	Units	MSCs Used Aquifer Residential	MSCs Used Aquifer Non Residential	MW1 (W1)	MW2 (W2)	MW3 (W3)	MW1 (W4)	MW2 (W5)	MW3 (W6)	MW4 (W7)	Trip Blank
Di-n-butyl phthalate	ug/l			<11	<10	<10	<5	<5	<5	<5	
Di-n-octyl phthalate	ug/l	730	2000	<11	<10	<10	<5	<5	<5	<5	
Dibenz (a,h) anthracene	ug/l	0.09	0.36	<11	<10	<10	<2	<2	<2	<2	
Diethyl phthalate	ug/l	5000	5000	<11	<10	<10	<11	<11	<10	<10	
Dimethyl phthalate	ug/l			<11	<10	<10	<11	<11	<10	<10	
Fluoranthene	ug/l	260	260	<11	<10	<10	<2	<2	<2	<2	
Fluorene	ug/l	1500	1900	<11	<10	<10	<3	<3	<3	<3	
Hexachlorobenzene	ug/l	1	1	<11	<10	<10	<2	<2	<2	<2	
Hexachlorobutadiene	ug/l	1	1	<11	<10	<10	<5	<5	<5	<5	
Hexachlorocyclopentadiene	ug/l	50	50	<11	<10	<10	<11	<11	<10	<10	
Hexachloroethane	ug/l	1	1	<11	<10	<10	<5	<5	<5	<5	
Indeno (1,2,3-cd) pyrene	ug/l	0.9	3.6	<11	<10	<10	<2	<2	<2	<2	
Isophorone	ug/l	100	100	<11	<10	<10	<3	<3	<3	<3	
N-Nitrosodi-n-propylamine	ug/l	0.094	0.37	<11	<10	<10	<3	<3	<3	<3	
N-Nitrosodimethylamine	ug/l			<11	<10	<10	ND	ND	ND	ND	
N-Nitrosodiphenylamine	ug/l	130	530	<11	<10	<10	<3	<3	<3	<3	
Naphthalene	ug/l	100	100	<11	<10	<10	<3	<3	<3	<3	
Nitrobenzene	ug/l	18	51	<11	<10	<10	<3	<3	<3	<3	
Pentachlorophenol	ug/l	1	1	<11	<10	<10	<26	<27	<26	<26	
Phenanthrene	ug/l	1100	1100	<11	<10	<10	<3	<3	<3	<3	
Phenol	ug/l	4000	4000	<11	<10	<10	<11	<11	<10	<10	
Pyrene	ug/l	130	130	<11	<10	<10	<2	<2	<2	<2	
2-Methylnaphthalene	ug/l	730	2000	<11	<10	<10	<2	<2	<2	<2	
2-Methylphenol	ug/l	1800	5100	<11	<10	<10	ND	ND	ND	ND	
2-Nitroaniline	ug/l	2.1	5.8	<11	<10	<10	<2	<2	<2	<2	
2,4,5-Trichlorophenol	ug/l	3700	10000	<11	<10	<10	<11	<11	<10	<10	
3,4-Methylphenol	ug/l	1800	5100	<11	<10	<10	ND	ND	ND	ND	
3-Nitroaniline	ug/l	2.1	5.8	<11	<10	<10	<2	<2	<2	<2	
4-Chloroaniline	ug/l			<11	<10	<10	<3	<3	<3	<3	
4-Nitroaniline	ug/l	2.1	5.8	<11	<10	<10	<2	<2	<2	<2	
Aniline	ug/l	2.8	5.8	<11	<10	<10	ND	ND	ND	ND	

J - Analyte detected below quantitation limits.
ND - Analyte not detected.

Table 6: GROUNDWATER ANALYTICAL RESULTS - SVOCs
FORMER GIBBLES'S QUARRY
BOROUGH OF MANHEIM, LANCASTER COUNTY, PENNSYLVANIA
Samples Collected on 11-5-2003

Analyte	Units	MSCs Used Aquifer Residential	MSCs Used Aquifer Non Residential	MW1 (W1)	MW2 (W2)	MW3 (W3)	MW1 (W4)	MW2 (W5)	MW3 (W6)	MW4 (W7)	Trip Blank
Benzoic acid	ug/l	150000	410000	<11	<10	<10	ND	ND	ND	ND	

J - Analyte detected below quantitation limits.
ND - Analyte not detected.

Table 7:
GROUNDWATER ANALYTICAL RESULTS - METALS AND ASBESTOS
FORMER GIBBLES'S QUARRY
BOROUGH OF MANHEIM, LANCASTER COUNTY, PENNSYLVANIA
Samples Collected on 11-5-2003

Analyte	Units	MSCs Used Aquifer Residential	MSCs Used Aquifer Non Residential	MW 1 (W1)	MW 2 (W2)	MW 3 (W3)	MW 1 (W4)	MW 2 (W5)	MW 3 (W6)	MW 4 (W7)
Barium and Compounds	ug/l	2000	2000	355	33.9	69.1	1790	29	105	1860
Beryllium	ug/l	4	4	ND	ND	ND	<4	<4	<4	<4
Cadmium	ug/l	5	5	<2	<2	<2	<1	<1	<1	<1
Calcum	ug/l			ND	ND	ND	110000	139000	139000	158000
Chromium	ug/l	100	100	0.44 J	<0.75 J	<2	<6	<6	<6	58
Copper	ug/l	1000	1000	ND	ND	ND	<11	<11	12	16
Nickel	ug/l	100	100	ND	ND	ND	<20	<20	<20	20
Selenium	ug/l	50	50	4	7.37	4 J	<10	<10	<10	<10
Silver	ug/l	100	100	<5	<5	<5	<4	<4	<4	<4
Zinc	ug/l	2000	2000	ND	ND	ND	<20	30	40	200
Antimony	ug/l	6	6	ND	ND	ND	<10	<10	<10	<10
Arsenic	ug/l	50	50	<5	1.8 J	4.5	<9	<9	<9	<9
Asbestos	fibres/l	7,000,000	7,000,000	ND	ND	ND	ND	ND	ND	ND
Lead	ug/l	5	5	2.8	2.6 J	1.2 J	ND	ND	ND	ND
Mercury	ug/l	2	2	ND	ND	ND	<0.5	<0.5	<0.5	<0.5
Thallium	ug/l	2	2	ND	ND	ND	<10	<10	<10	<10
Cobalt	ug/l	730	2000	ND	ND	ND	<6	<6	<6	<6
Aluminum	ug/l	200	200	ND	ND	ND	900	1400	1200	2500
Iron	ug/l	300	300	ND	ND	ND	22300	1760	1030	17200
Magnesium	ug/l			ND	ND	ND	43300	49900	39700	58100
Manganese	ug/l	50	50	ND	ND	ND	521	23	1520	326
Potassium	ug/l			ND	ND	ND	11700	2210	3300	8950
Sodium	ug/l			ND	ND	ND	57100	7070	65000	26900
Vanadium	ug/l	260	720	ND	ND	ND	<6	<6	<6	<6

J - Analyte detected below quantitation limits.
ND - Analyte not detected.

Table 8: GROUNDWATER ANALYTICAL RESULTS - PCBs
FORMER GIBBLES'S QUARRY
BOROUGH OF MANHEIM, LANCASTER COUNTY, PENNSYLVANIA
Samples Collected on 11-5-2003 06-09-2004

Analyte	Units	MSCs Used Aquifer Residential	MSCs Used Aquifer Non Residential	MW1 (W1)	MW2 (W2)	MW3 (W3)	MW1 (W4)	MW2 (W5)	MW3 (W6)	MW4 (W7)	Trip Blank
Aroclor 1016	ug/l			ND	ND	ND	ND	ND	ND	ND	
Aroclor 1221	ug/l			ND	ND	ND	ND	ND	ND	ND	
Aroclor 1232	ug/l			ND	ND	ND	ND	ND	ND	ND	
Aroclor 1242	ug/l			ND	ND	ND	ND	ND	ND	ND	
Aroclor 1248	ug/l			ND	ND	ND	ND	ND	ND	ND	
Aroclor 1254	ug/l			ND	ND	ND	ND	ND	ND	ND	
Aroclor 1264	ug/l			ND	ND	ND	ND	ND	ND	ND	
Aroclor 1262	ug/l			ND	ND	ND	ND	ND	ND	ND	
Aroclor 1268	ug/l			ND	ND	ND	ND	ND	ND	ND	

APPENDIX "B"

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Log of Borehole: W1

Project No.: 1062G1
Project: Gibble's Quarry
Client: TCS Family Enterprises — ***Enclosure:***
Location: Manheim, Lancaster CO, PA — ***Project Manager:*** FC

SUBSURFACE PROFILE				SAMPLE			
Depth (ft / m)	Symbol	Description	Depth/Elev.	Number	Type	Recovery	Well Completion Details
0 / 0		Ground Surface	414.4				
0		Topsoil.	0.0				
2		Brown and tan fine sand and silty clay with occasional rock fragments.					
4				S1		100	
6 / 2							
8							
10				S2		100	
12		**Stratum II**	401.8				
14 / 4		Brown, tan and gray slightly to moderately weathered limestone. One clay filled seam encountered at 37.5', where groundwater was first encountered.	12.7				
18							
20 / 6				S3		100	
22							
24							
26 / 8							
28							
30							
32 / 10							
34							
36							
38							
40 / 12							
42							
44							
46 / 14							
48							
50		**Stratum III**	362.4				
52 / 16		**Well Terminated.**	52.0				

Drilled By: Garber Well Drilling — ***Hole Size:*** 8"
Drill Method: Auger — ***Datum:*** Local
Drill Date: 9-12-03 — ***Sheet:*** 1 of 1

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Log of Borehole: W2

Project No.: 1062G1
Project: Gibble's Quarry
Client: TCS Family Enterprises — ***Enclosure:***
Location: Manheim, Lancaster CO, PA — ***Project Manager:*** FC

SUBSURFACE PROFILE				SAMPLE			
Depth (ft / m)	Symbol	Description	Depth/Elev.	Number	Type	Recovery	Well Completion Details
0 / 0		Ground Surface	425.2				
		Topsoil.	0.0				
2		Miscellaneous fill material consisting of limestone derived soil mixed with construction debris and shale.					
6 / 2		**Stratum IMF**	418.7				
8		Brown and tan fine sand and silty clay with occasional rock fragments.	6.5	S1		100	
12 / 4				S2		100	
14				S3		100	
16		**Stratum II**	408.7				
18		Brown, tan and gray slightly weathered limestone. Water was encountered at 26.5'. Two clay filled seams encountered at 40.5' and 47'.	16.5				
20 / 6							
22							
24							
26 / 8							
28							
30							
32 / 10							
34							
36							
38							
40 / 12							
42							
44							
46 / 14		**Stratum III**	376.2				
48		**Well Terminated.**	49.0				
50							

Drilled By: Garber Well Drilling — ***Hole Size:*** 8"
Drill Method: Auger — ***Datum:*** Local
Drill Date: 9-12-03 — ***Sheet:*** 1 of 1

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Log of Borehole: W3

Project No.: 1062G1

Project: Gibble's Quarry

Client: TCS Family Enterprises ***Enclosure:***

Location: Manheim, Lancaster CO, PA ***Project Manager:*** FC

SUBSURFACE PROFILE				SAMPLE			
Depth (ft / m)	Symbol	Description	Depth/Elev.	Number	Type	Recovery	Well Completion Details
0 / 0		Ground Surface	428.3				
		Topsoil.	0.0				
		Miscellaneous fill material consisting of limestone derived soil mixed with shale.	423.8				
		Stratum IMF	4.5				
2 / 2		Brown and tan fine sand and silty clay with occasional rock fragments.		S1		100	
4 / 4		**Stratum II**	414.8	S2		100	
		Brown, tan and gray slightly weathered limestone. Water was encountered at 49.5'.	13.5	S3		50	
6 / 6							
8 / 8							
10 / 10							
12 / 12							
14 / 14							
16 / 16		**Stratum III**	373.3				
54		**Well Terminated.**	55.0				

Drilled By: Garber Well Drilling ***Hole Size:*** 8"

Drill Method: Auger ***Datum:*** Local

Drill Date: 9-12-03 ***Sheet:*** 1 of 1

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Log of Borehole: W4.1

Project No.: 1062G1
Project: Gibble's Quarry
Client: TCS Family Enterprises — ***Enclosure:***
Location: Manheim, Lancaster CO, PA — ***Project Manager:*** FC

SUBSURFACE PROFILE				SAMPLE			
Depth (ft / m)	Symbol	Description	Depth/Elev.	Number	Type	Recovery	Well Completion Details
0 / 0		Ground Surface	415.9				
		Topsoil.	0.0				
2		Miscellaneous fill material consisting of limestone derived soil mixed with construction debris and topsoil					
6 / 2		**Stratum IMF**	408.4	S1		100	
8		Brown and tan fine sand and silty clay with occasional rock fragments.	7.5				
12 / 4				S2		100	
14				S3		50	
16		**Stratum II**	399.5				
18		Brown, tan and gray slightly weathered limestone. Water was encountered at 34.5'. This well was abondoned at a later date.	16.4				
20 / 6							
22							
24							
26 / 8							
28							
30							
32 / 10							
34							
36							
38							
40 / 12							
42							
44							
46 / 14							
48		**Stratum III**	367.4				
50		**Well Terminated.**	48.5				

Drilled By: Garber Well Drilling — ***Hole Size:*** 8"
Drill Method: Auger — ***Datum:*** Local
Drill Date: 12-15-03 — ***Sheet:*** 1 of 1

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Log of Borehole: W4.2

Project No.: 1062G1

Project: Gibble's Quarry

Client: TCS Family Enterprises ***Enclosure:***

Location: Manheim, Lancaster CO, PA ***Project Manager:*** FC

SUBSURFACE PROFILE				SAMPLE			
Depth (ft / m)	Symbol	Description	Depth/Elev.	Number	Type	Recovery	Well Completion Details
0 / 0		Ground Surface	423.9				
0 / 0		Topsoil.	0.0				
2 /		Miscellaneous fill material consisting of limestone derived soil mixed with construction debris and topsoil					
4 /			418.4				
6 / 2		**Stratum IMF**	5.5	S1		100	
8 /		Brown and tan fine sand and silty clay with occasional rock fragments.		S2		100	
10 /							
12 / 4		**Stratum II**	411.5				
14 /			12.4				
14 /		Brown, tan and gray slightly weathered limestone.		S3		50	
16 /		Water was encountered at 36.5'.					
18 /							
20 / 6							
22 /							
24 /							
26 / 8							
28 /							
30 /							
32 / 10							
34 /							
36 /							
38 /							
40 / 12							
42 /							
44 /							
46 / 14							
48 /							
50 /							
52 / 16		**Stratum III**	370.4				
54 /		**Well Terminated.**	53.5				

Drilled By: Garber Well Drilling ***Hole Size:*** 8"

Drill Method: Auger ***Datum:*** Local

Drill Date: 04-23-2004 ***Sheet:*** 1 of 1

Project No: 1062G1

Project: Gibble's Quarry

Client: TCS Family Enterprises

Site Location: Manheim BO, Lancaster CO. **Engineer:** FC

Test Boring No: A1

Surface Elevation: 420.9'

Test Boring Depth: 20.5'

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Depth	Description	Depth/Elev.	Sample Number	Sample Type	Blows/6"	Shear Strength (blows/ft)
0.0	Ground Surface	420.9				
0.0	Vegetation and roots.	420.3				
1.0	Fill material consisting of limestone derived soils, , some shale, occasional construction debris.					
5.0	**Stratum IF**	414.9	S1*	SS	3-4-4-5	
6.0	Dark brown and brown foundry sand with occasional construction debris and wood.		S2**	SS	4-5-1-1	
16.0	**Stratum IIMF**	403.4	S3**	SS	1-3-2-9	
18.0	Virgin soil consisting of brown and orange brown fine sand and silty clay with rock fragments.		S4*	SS	9-14-15-21	
20.0	**Stratum VS**	400.4				
21.0	**Auger refusal.**					

Shear Strength: blows/ft — 10 20 30 40 50

Remarks:

Groundwater at 9.5' after 5 minutes.

Groundwater at 8.5' after 24 hours.

* Soil sample is moist.

** Soil sample is wet.

Auger refusal at 20.5' depth due to very choppy augering.

Drilled By: Corcoran Drilling Inc.

Drill Method: 6" hollow stem auger 0' - 20.5'

Drill Date: 7-19-2003

Hole Size: 6"

Datum: local

Sheet: 1 of 1

Project No: 1062G1

Project: Gibble's Quarry

Client: TCS Family Enterprises

Site Location: Manheim BO, Lancaster CO.

Test Boring No: A2

Surface Elevation: 419.9'

Test Boring Depth: 19.5'

Engineer: FC

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SUBSURFACE PROFILE				SAMPLE					
Depth	Symbol	Description	Depth/Elev.	Number	Type	Blows/6"	Symbol	Shear Strength blows/ft (10 20 30 40 50)	Remarks
0.0		Ground Surface	419.9						Auger probe is located in the uncovered part of the quarry.
0.0		Vegetation and roots.	419.3						
1.0		Dark brown and brown foundry sand with occasional construction debris and wood.							Groundwater at 9.5' after 5 minutes.
5.0				S1*	SS	3-2-2-1			Groundwater at 8.5' after 24 hours.
7.0				S2**	SS	1-2-1-2			* Soil sample is moist.
15.0		**Stratum IIMF**	404.3	S3**	SS	2-3-4-3			** Soil sample is wet.
16.0		Virgin soil consisting of brown and orange brown fine sand and silty clay with rock fragments.		S4*	SS	5-12-19-35			Auger refusal at 19.5' depth after hard to very hard augering from 18' to refusal.
19.0		**Stratum VS**	400.4						
20.0		**Auger refusal.**							

Drilled By: Corcoran Drilling Inc.

Drill Method: 6" hollow stem auger 0' - 19.5'

Drill Date: 7-19-2003

Hole Size: 6"

Datum: local

Sheet: 1 of 1

Project No: 1062G1

Project: Gibble's Quarry

Client: TCS Family Enterprises

Site Location: Manheim BO, Lancaster CO.

Test Boring No: A3

Surface Elevation: 416.7'

Test Boring Depth: 21.5'

Engineer: FC

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Depth	Symbol	Description	Depth/Elev.	Number	Type	Blows/6"	Symbol	Shear Strength blows/ft (10 20 30 40 50)	Remarks
0.0		Ground Surface	416.7						Auger probe is located in the uncovered part of the quarry.
0.0		Vegetation and roots.	416.1						
1.0		Dark brown and brown foundry sand with occasional construction debris and wood.							Groundwater at 8.5' after 5 minutes.
5.0				S1*	SS	1-1-7-1			Groundwater at 6.5' after 24 hours.
7.0				S2**	SS	1-2-1-2			* Soil sample is moist.
15.0				S3**	SS	5-9-7-8			** Soil sample is wet.
16.0		**Stratum IIMF**	400.4						Auger refusal at 19.5' depth after hard to very hard augering from 18' to refusal.
17.0		Virgin soil consisting of brown and orange brown fine sand and silty clay with rock fragments.		S4*	SS	12-16-14-27			
21.0		**Stratum VS**	395.2						
22.0		**Auger refusal.**							

Drilled By: Corcoran Drilling Inc.

Drill Method: 6" hollow stem auger 0' - 21.5'

Drill Date: 7-19-2003

Hole Size: 6"

Datum: local

Sheet: 1 of 1

Project No: 1062G1

Project: Gibble's Quarry

Client: TCS Family Enterprises

Site Location: Manheim BO, Lancaster CO.

Test Boring No: A4

Surface Elevation: 416.7'

Test Boring Depth: 23.5'

Engineer: FC

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SUBSURFACE PROFILE				SAMPLE					
Depth	Symbol	Description	Depth/Elev.	Number	Type	Blows/6"	Symbol	Shear Strength blows/ft (10 20 30 40 50)	Remarks
0.0		Ground Surface	416.7						Auger probe is located in the uncovered part of the quarry.
0.0		Vegetation and roots.	416.0						
1.0		Dark brown and brown foundry sand with occasional construction debris and wood.							Groundwater at 8.5' after 5 minutes.
7.0				S1*	SS	1-3-1-1			Groundwater at 6.5' after 24 hours.
8.0									* Soil sample is moist.
9.0				S2**	SS	1-1-2-1			** Soil sample is wet.
10.0									Auger refusal at 23.5' depth after hard to very hard augering from 22' to refusal.
16.0				S3**	SS	3-5-2-2			
17.0									
18.0				S4**	SS	3-5-5-9			
19.0		**Stratum IIMF**	396.7						
20.0		Virgin soil consisting of brown and orange brown fine sand and silty clay with rock fragments.							
23.0		**Stratum VS**	393.2						
24.0		**Auger refusal.**							

Drilled By: Corcoran Drilling Inc.

Drill Method: 6" hollow stem auger 0' - 23.5'

Drill Date: 7-19-2003

Hole Size: 6"

Datum: local

Sheet: 1 of 1

Project No: 1062G1

Project: Gibble's Quarry

Client: TCS Family Enterprises

Site Location: Manheim BO, Lancaster CO. **Engineer:** FC

Test Boring No: A5

Surface Elevation: 415.2'

Test Boring Depth: 24.5'

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SUBSURFACE PROFILE				SAMPLE					
Depth	Symbol	Description	Depth/Elev.	Number	Type	Blows/6"	Symbol	Shear Strength blows/ft (10 20 30 40 50)	Remarks
0.0		Ground Surface	415.2						Auger probe is located in the uncovered part of the quarry.
0.0		Vegetation and roots.	414.5						
1.0		Dark brown and brown foundry sand with occasional construction debris and wood.							Groundwater at 6.5' after 5 minutes.
2.0									
3.0									Groundwater at 5.5' after 24 hours.
4.0									
5.0									* Soil sample is moist.
6.0									
7.0									** Soil sample is wet.
8.0				S1*	SS	1-1-5-1			
9.0									Auger refusal at 24.5' depth after hard to very hard augering from 22' to refusal.
10.0				S2**	SS	1-2-3-1			
11.0									
12.0									
13.0									
14.0									
15.0									
16.0									
17.0				S3**	SS	2-2-7-2			
18.0									
19.0				S4**	SS	5-4-9-12			
20.0									
21.0		**Stratum IIMF**	393.2						
22.0		Virgin soil consisting of brown and orange brown fine sand and silty clay with rock fragments. **Stratum VS**	390.7						
23.0									
24.0									
25.0		**Auger refusal.**							

Drilled By: Corcoran Drilling Inc.

Drill Method: 6" hollow stem auger 0' - 24.5'

Drill Date: 7-19-2003

Hole Size: 6"

Datum: local

Sheet: 1 of 1

Project No: 1062G1

Project: Gibble's Quarry

Client: TCS Family Enterprises

Site Location: Manheim BO, Lancaster CO.

Test Boring No: A6

Surface Elevation: 415.5'

Test Boring Depth: 31.0'

Engineer: FC

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Depth	Description	Depth/Elev.	Number	Type	Blows/6"	Remarks
0.0	Ground Surface	415.5				Auger probe is located in the uncovered part of the quarry.
1.0	Vegetation and roots.	414.5				
2.0	Dark brown and brown foundry sand with occasional construction debris and wood.					Groundwater at 6.5' after 5 minutes.
5.0						Groundwater at 5.5' after 24 hours.
8.0			S1*	SS	3-6-2-2	* Soil sample is moist.
10.0			S2**	SS	4-2-1-4	** Soil sample is wet.
18.0			S3**	SS	7-5-9-7	Hrd to very hard augering from 28' to 30.5'. Extremely hard augering from 30.5' to refusal.
21.0			S4**	SS	9-11-9-23	
22.0	**Stratum IIMF**	392.5				
23.0	Virgin soil consisting of brown and orange brown fine sand and silty clay with rock fragments.					
30.0	**Stratum VS**	384.5				
31.0	**Auger refusal.**					
32.0						

Shear Strength blows/ft: 10 20 30 40 50

Drilled By: Corcoran Drilling Inc.

Drill Method: 6" hollow stem auger 0' - 31.0'

Drill Date: 7-19-2003

Hole Size: 6"

Datum: local

Sheet: 1 of 1

Project No: 1062G1

Project: Gibble's Quarry

Client: TCS Family Enterprises

Site Location: Manheim BO, Lancaster CO. **Engineer:** FC

Test Boring No: A7

Surface Elevation: 415.3'

Test Boring Depth: 25.5'

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SUBSURFACE PROFILE				SAMPLE					
Depth	Symbol	Description	Depth/Elev.	Number	Type	Blows/6"	Symbol	Shear Strength blows/ft (10 20 30 40 50)	Remarks
0.0		Ground Surface	415.3						Auger probe is located in the uncovered part of the quarry.
1.0		Vegetation and roots.	414.3						Groundwater at 7.5' after 5 minutes.
2.0		Dark brown and brown foundry sand with occasional construction debris and wood.							Groundwater at 5.0' after 24 hours.
3.0									* Soil sample is moist.
4.0									** Soil sample is wet.
5.0									Hard to very hard augering from 23' to refusal.
6.0									
7.0									
8.0									
9.0				S1*	SS	2-3-1-6			
10.0									
11.0				S2**	SS	3-2-3-2			
12.0									
13.0									
14.0									
15.0									
16.0									
17.0									
18.0									
19.0				S3**	SS	5-9-6-9			
20.0		**Stratum IIMF**	394.8						
21.0		Virgin soil consisting of brown and orange brown fine sand and silty clay with rock fragments.		S4**	SS	7-11-14-21			
22.0									
23.0									
24.0									
25.0		**Stratum VS**	389.8						
26.0		**Auger refusal.**							
27.0									

Drilled By: Corcoran Drilling Inc.

Drill Method: 6" hollow stem auger 0' - 25.5'

Drill Date: 7-19-2003

Hole Size: 6"

Datum: local

Sheet: 1 of 1

Project No: 1062G1

Project: Gibble's Quarry

Client: TCS Family Enterprises

Site Location: Manheim BO, Lancaster CO. **Engineer:** FC

Test Boring No: A8

Surface Elevation: 417.2'

Test Boring Depth: 18.5'

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SUBSURFACE PROFILE				SAMPLE					
Depth	Symbol	Description	Depth/Elev.	Number	Type	Blows/6"	Symbol	Shear Strength blows/ft (10 20 30 40 50)	Remarks
0.0		Ground Surface	417.2						Auger probe is located in the uncovered part of the quarry.
		Vegetation and roots.	416.7						
1.0		Dark brown and brown foundry sand with occasional construction debris, wood and household waste.							Groundwater at 7.5' after 5 minutes.
2.0									
3.0									Groundwater at 5.0' after 24 hours.
4.0									
5.0									* Soil sample is moist.
6.0									
7.0									** Soil sample is wet.
8.0									
9.0				S1*	SS	3-2-1-4			Performed 3 auger attempts around the original location; however, none penetrated below 18.5'.
10.0									
11.0				S2**	SS	2-5-7-2			
12.0									
13.0									
14.0									
15.0									
16.0		**Stratum IIMF**							
17.0			400.2	S3**	SS	7-15-50-3"			
		Virgin soil consisting of brown and orange brown fine sand and silty clay with rock fragments. **Stratum VS**	398.7						
18.0									
19.0		**Auger refusal.**							

Drilled By: Corcoran Drilling Inc.

Drill Method: 6" hollow stem auger 0' - 18.5'

Drill Date: 7-19-2003

Hole Size: 6"

Datum: local

Sheet: 1 of 1

Project No: 1062G1

Project: Gibble's Quarry

Client: TCS Family Enterprises

Site Location: Manheim BO, Lancaster CO. **Engineer:** FC

Test Boring No: A9

Surface Elevation: 418.3'

Test Boring Depth: 29.5'

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SUBSURFACE PROFILE				SAMPLE					
Depth	Symbol	Description	Depth/Elev.	Number	Type	Blows/6"	Symbol	Shear Strength blows/ft (10 20 30 40 50)	Remarks
0.0		Ground Surface	418.3						Auger probe is located in the uncovered part of the quarry.
1.0		Vegetation and roots.	417.4						
2.0		Dark brown and brown foundry sand with occasional construction debris, wood and household waste.							Groundwater at 9.5' after 5 minutes.
3.0									
4.0									Groundwater at 7.0' after 24 hours.
5.0									
6.0									* Soil sample is moist.
7.0									
8.0									** Soil sample is wet.
9.0				S1*	SS	4-3-3-1			
10.0									Encountered rock at 28' below grade and auger refusal at 29.5'.
11.0				S2**	SS	5-6-5-4			
12.0									
13.0									
14.0									
15.0									
16.0									
17.0									
18.0									
19.0				S3**	SS	5-9-3-6			
20.0									
21.0		**Stratum IIMF**	396.3						
22.0		Virgin soil consisting of brown and orange brown fine sand and silty clay with rock fragments.		S4*	SS	8-9-12-13			
23.0									
24.0									
25.0									
26.0									
27.0									
28.0									
29.0		**Stratum VS**	388.8						
30.0		**Auger refusal.**							

Drilled By: Corcoran Drilling Inc.

Drill Method: 6" hollow stem auger 0' - 29.5'

Drill Date: 7-19-2003

Hole Size: 6"

Datum: local

Sheet: 1 of 1

Project No: 1062G1

Project: Gibble's Quarry

Client: TCS Family Enterprises

Site Location: Manheim BO, Lancaster CO. **Engineer:** FC

Test Boring No: A10

Surface Elevation: 419.9'

Test Boring Depth: 20.5'

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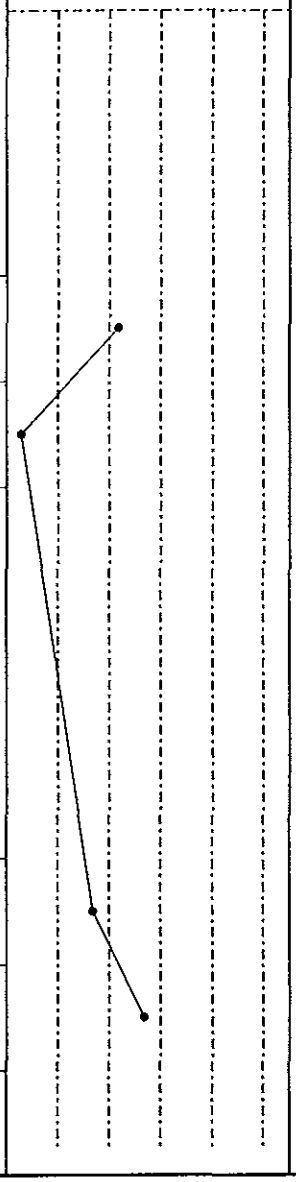
Depth	Symbol	Description	Depth/Elev.	Number	Type	Blows/6"	Symbol
0.0		Ground Surface	419.9				
		Vegetation and roots.	419.3				
1.0		Fill material consisting of limestone derived soils, , some shale, occasional construction debris.					
2.0							
3.0							
4.0							
5.0							
6.0				S1*	SS	12-13-9-21	
		Stratum IF	412.9				
7.0		Dark brown and brown foundry sand with occasional construction debris and wood.					
8.0				S2**	SS	2-2-1-2	
9.0							
10.0							
11.0							
12.0							
13.0							
14.0							
15.0		**Stratum IIMF**	404.4				
16.0		Virgin soil consisting of brown and orange brown fine sand and silty clay with rock fragments.					
17.0				S3**	SS	8-9-8-9	
18.0							
19.0				S4*	SS	13-15-12-21	
20.0		**Stratum VS**	399.4				
21.0		**Auger refusal.**					

Shear Strength
blows/ft
10 20 30 40 50



Remarks

Groundwater at 9.5' after 5 minutes.

Groundwater at 8.5' after 24 hours.

* Soil sample is moist.

** Soil sample is wet.

Auger refusal at 20.5' depth due to very choppy augering.

Drilled By: Corcoran Drilling Inc.

Drill Method: 6" hollow stem auger 0' - 20.5'

Drill Date: 7-19-2003

Hole Size: 6"

Datum: local

Sheet: 1 of 1

Project No: 1062G1

Project: Gibble's Quarry

Client: TCS Family Enterprises

Site Location: Manheim BO, Lancaster CO. **Engineer:** FC

Test Boring No: A11

Surface Elevation: 421.6'

Test Boring Depth: 24.5'

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SUBSURFACE PROFILE				SAMPLE					
Depth	Symbol	Description	Depth/Elev.	Number	Type	Blows/6"	Symbol	Shear Strength blows/ft (10 20 30 40 50)	Remarks
0.0		Ground Surface	421.6						Groundwater at 12.5' after 5 minutes.
0.0		Vegetation and roots.	420.9						
1.0–3.0		Fill material consisting of limestone derived soils, some shale, occasional construction debris.							Groundwater at 9.5' after 24 hours.
5.0–6.0				S1*	SS	9-11-15-17			* Soil sample is moist.
6.0		**Stratum IF**	414.6						** Soil sample is wet.
7.0–8.0		Dark brown and brown foundry sand with occasional construction debris and wood.		S2**	SS	1-2-1-2			Auger refusal at 24.5' depth after very hard augering through rock.
19.0				S3**	SS	3-2-5-4			
20.0		**Stratum IIMF**							
21.0			400.6	S4*	SS	3-7-9-12			
21.0–24.0		Virgin soil consisting of brown and orange brown fine sand and silty clay with rock fragments.							
24.0		**Stratum VS**	397.1						
25.0		**Auger refusal.**							

Drilled By: Corcoran Drilling Inc.

Drill Method: 6" hollow stem auger 0' - 24.5'

Drill Date: 7-19-2003

Hole Size: 6"

Datum: local

Sheet: 1 of 1

Project No: 1062G1

Project: Gibble's Quarry

Client: TCS Family Enterprises

Site Location: Manheim BO, Lancaster CO. **Engineer:** FC

Test Boring No: A12

Surface Elevation: 422.6'

Test Boring Depth: 23.5'

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SUBSURFACE PROFILE				SAMPLE					
Depth	Symbol	Description	Depth/Elev.	Number	Type	Blows/6"	Symbol	Shear Strength blows/ft (10 20 30 40 50)	Remarks
0.0		Ground Surface	422.6						Groundwater at 12.5' after 5 minutes.
		Vegetation and roots.	421.9						
1.0		Fill material consisting of limestone derived soils, some shale, occasional construction debris.							Groundwater at 9.5' after 24 hours.
2.0									
3.0									* Soil sample is moist.
4.0									
5.0									** Soil sample is wet.
6.0				S1*	SS	11-8-12-17			
7.0		**Stratum IF**	415.1						Auger refusal at 23.5' depth after very hard augering through rock.
8.0		Dark brown and brown foundry sand with occasional construction debris and wood.		S2**	SS	8-3-1-1			
9.0									
10.0									
11.0									
12.0									
13.0									
14.0									
15.0									
16.0									
17.0									
18.0									
19.0				S3**	SS	2-5-3-3			
20.0									
21.0		**Stratum IIMF**		S4*	SS	5-7-6-9			
22.0			400.6						
23.0		Virgin soil consisting of brown and orange brown fine sand and silty clay with rock fragments. **Stratum VS**	399.1						
24.0		**Auger refusal.**							
25.0									

Drilled By: Corcoran Drilling Inc.

Drill Method: 6" hollow stem auger 0' - 23.5'

Drill Date: 7-19-2003

Hole Size: 6"

Datum: local

Sheet: 1 of 1

Project No: 1062G1

Project: Gibble's Quarry

Client: TCS Family Enterprises

Site Location: Manheim BO, Lancaster CO. **Engineer:** FC

Test Boring No: A13

Surface Elevation: 423.9'

Test Boring Depth: 21.5'

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SUBSURFACE PROFILE				SAMPLE					
Depth	Symbol	Description	Depth/Elev.	Number	Type	Blows/6"	Symbol	Shear Strength blows/ft (10 20 30 40 50)	Remarks
0.0		Ground Surface	423.9						Groundwater at 15.5' after 5 minutes.
1.0		Vegetation and roots.	423.2						Hole collapsed after 24 hours.
2.0		Fill material consisting of limestone derived soils, some shale, occasional construction debris.							* Soil sample is moist.
3.0									** Soil sample is wet.
4.0									
5.0									Starting at 15' below grade some foundry sand mixed with 2A modified stone and ballst was encountered, probably related to the foundry sand dumping.
6.0				S1*	SS	8-9-7-13			
7.0		**Stratum IF**	416.4						
8.0		Miscelaneous fill material consisting of construction debris, wood, metal trace of foundry sand, 2A modified, etc.		S2**	SS	8-7-2-1			
9.0									
10.0									
11.0									
12.0									
13.0									
14.0									
15.0									
16.0									
17.0				S3**	SS	7-9-5-5			
18.0		**Stratum IIMF**	404.9						
19.0				S4**	SS	4-5-9-12			
20.0		Virgin soil consisting of brown and orange brown fine sand and silty clay with rock fragments.**Stratum VS**							
21.0			402.4						
22.0		**Auger refusal.**							Auger refusal at 21.5' depth after very hard augering through rock.

Drilled By: Corcoran Drilling Inc.

Drill Method: 6" hollow stem auger 0' - 21.5'

Drill Date: 7-19-2003

Hole Size: 6"

Datum: local

Sheet: 1 of 1

Project No: 1062G1

Project: Gibble's Quarry

Client: TCS Family Enterprises

Site Location: Manheim BO, Lancaster CO. **Engineer:** FC

Test Boring No: A14

Surface Elevation: 422.1'

Test Boring Depth: 23.5'

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SUBSURFACE PROFILE				SAMPLE					
Depth	Symbol	Description	Depth/Elev.	Number	Type	Blows/6"	Symbol	Shear Strength blows/ft (10 20 30 40 50)	Remarks
0.0		Ground Surface	422.1						Groundwater at 15.5' after 5 minutes.
0.0		Vegetation and roots.	421.4						
1.0–8.0		Fill material consisting of limestone derived soils, some shale, occasional construction debris.							Hole collapsed after 24 hours.
									* Soil sample is moist.
5.0–6.0				S1*	SS	7-9-9-8			** Soil sample is wet.
7.0–8.0				S2*	SS	9-12-8-13			
8.0		**Stratum IF**	413.1						Starting at 15' below grade some foundry sand mixed with 2A modified stone and ballst was encountered, probably related to the foundry sand dumping.
9.0–22.0		Dark brown and brown foundry sand with construction debris, wood, plastic.							
18.0–19.0				S3**	SS	7-6-6-6			
20.0–21.0				S4**	SS	5-9-14-17			
22.0		**Stratum IIMF**	399.8						Auger refusal at 23.5' depth after very hard augering through rock.
23.0		Virgin soil consisting of brown and orange brown fine sand and silty clay with rock fragments.**Stratum VS**	398.6						
24.0–25.0		**Auger refusal.**							

Drilled By: Corcoran Drilling Inc.

Drill Method: 6" hollow stem auger 0' - 23.5'

Drill Date: 7-19-2003

Hole Size: 6"

Datum: local

Sheet: 1 of 1

Project No: 1062G1

Project: Gibble's Quarry

Client: TCS Family Enterprises

Site Location: Manheim BO, Lancaster CO. **Engineer:** FC

Test Boring No: A15

Surface Elevation: 424.8'

Test Boring Depth: 24.5'

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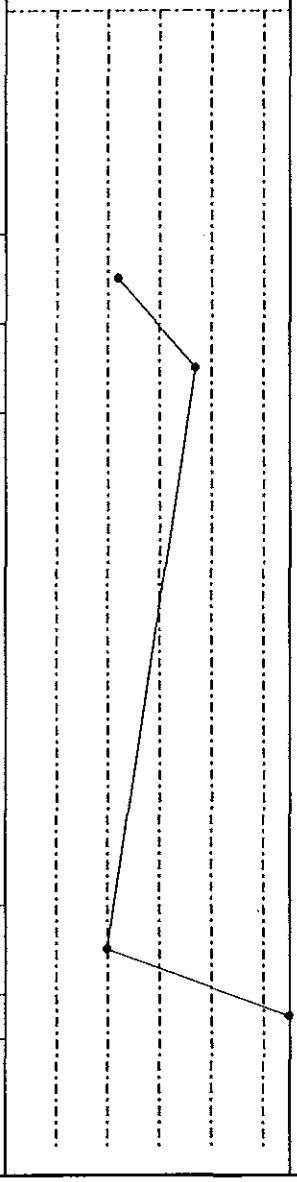
Depth	Description	Depth/Elev.	Number	Type	Blows/6"	Symbol
0.0	Ground Surface	424.8				
0.0	Vegetation and roots.	424.1				
1.0	Fill material consisting of limestone derived soils, some shale, occasional construction debris.					
6.0			S1*	SS	9-15-7-12	
8.0			S2*	SS	12-15-21-16	
9.0	**Stratum IF**	415.8				
9.0	Dark brown and brown foundry sand with construction debris, wood, plastic.					
21.0			S3**	SS	7-9-11-8	
21.0	**Stratum IIMF**	402.8				
22.0	Virgin soil consisting of brown and orange brown fine sand and silty clay with rock fragments.**Stratum VS**	400.3	S4	SS	15-50-3" N.R.	
25.0	**Auger refusal.**					

Shear Strength
blows/ft
10 20 30 40 50



Remarks

Groundwater at 16.5' after 5 minutes.

Hole collapsed after 24 hours.

* Soil sample is moist.

** Soil sample is wet.

Starting at 14' below grade the foundry sand is mixed with 2A modified stone and ballst, probably related to the foundry sand dumping.

Auger refusal at 24.5' depth after very hard augering through rock.

Drilled By: Corcoran Drilling Inc.

Drill Method: 6" hollow stem auger 0' - 24.5'

Drill Date: 7-19-2003

Hole Size: 6"

Datum: local

Sheet: 1 of 1

Project No: 1062G1

Project: Gibble's Quarry

Client: TCS Family Enterprises

Site Location: Manheim BO, Lancaster CO. **Engineer:** FC

Test Boring No: A16

Surface Elevation: 420.9'

Test Boring Depth: 17.5'

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Depth	Description	Depth/Elev.	Number	Type	Blows/6"	Remarks
0.0	Ground Surface	420.9				Auger probe dry after 5 minutes.
	Topsoil and roots.	420.4				
1.0	Fill material consisting of limestone derived soils, some shale, occasional construction debris.					Auger probe dry after 24 hours.
2.0						* Soil sample is moist.
3.0						** Soil sample is wet.
4.0						Starting at 14' below grade some foundry sand mixed with 2A modified stone and ballst, probably related to the foundry sand dumping, was encountered.
5.0						
6.0						
7.0						
8.0			S1*	SS	8-9-6-11	
9.0						
10.0			S2*	SS	9-14-21-9	
11.0						
12.0	**Stratum IF**	408.9				Auger refusal at 17.5' depth after hard to very hard augering through rock from 15' below grade.
13.0	Virgin soil consisting of brown and orange brown fine sand and silty clay with rock fragments.					
14.0			S3*	SS	9-15-19-29	
15.0						
16.0						
17.0	**Stratum VS**	403.4				
18.0	**Auger refusal.**					

Shear Strength blows/ft: 10 20 30 40 50

Drilled By: Corcoran Drilling Inc.

Hole Size: 6"

Drill Method: 6" hollow stem auger 0' - 17.5'

Datum: local

Drill Date: 7-19-2003

Sheet: 1 of 1

Project No: 1062G1

Project: Gibble's Quarry

Client: TCS Family Enterprises

Site Location: Manheim BO, Lancaster CO. **Engineer:** FC

Test Boring No: A17

Surface Elevation: 422.6'

Test Boring Depth: 16.5'

SVEI

4338 Pottsville Pike
Reading PA 19605
geotechnical & quality control engineers

SUBSURFACE PROFILE				SAMPLE					
Depth	Symbol	Description	Depth/Elev.	Number	Type	Blows/6"	Symbol	Shear Strength blows/ft (10 20 30 40 50)	Remarks
0.0		Ground Surface	422.6						Auger probe dry after 5 minutes.
		Topsoil and roots.	422.1						
1.0		Fill material consisting of limestone derived soils, some shale, occasional construction debris.							Auger probe dry after 24 hours.
2.0									* Soil sample is moist.
3.0									
4.0									Auger refusal at 16.5' depth after hard to very hard augering through rock from 15' below grade.
5.0									
6.0									
7.0									
8.0				S1*	SS	7-9-11-12			
9.0									
10.0				S2*	SS	11-9-9-15			
11.0		**Stratum IF**	410.6						
12.0		Virgin soil consisting of brown and orange brown fine sand and silty clay with rock fragments.		S3*	SS	8-17-7-9			
13.0									
14.0									
15.0									
16.0									
		Stratum VS	406.1						
17.0		**Auger refusal.**							

Drilled By: Corcoran Drilling Inc.

Drill Method: 6" hollow stem auger 0' - 16.5'

Drill Date: 7-19-2003

Hole Size: 6"

Datum: local

Sheet: 1 of 1

Project No: 1062G1

Project: Gibble's Quarry

Client: TCS Family Enterprises

Site Location: Manheim BO, Lancaster CO. **Engineer:** FC

Test Boring No: A18

Surface Elevation: 425.3'

Test Boring Depth: 16.5'

SVEI

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SUBSURFACE PROFILE				SAMPLE					
Depth	Symbol	Description	Depth/Elev.	Number	Type	Blows/6"	Symbol	Shear Strength blows/ft (10 20 30 40 50)	Remarks
0.0		Ground Surface	425.3						Auger probe dry after 5 minutes.
		Topsoil and roots.	424.8						
1.0		Fill material consisting of limestone derived soils, some shale, occasional construction debris.							Auger probe dry after 24 hours.
2.0									* Soil sample is moist.
3.0									
4.0									Auger refusal at 16.5' depth after hard to very hard augering through rock from 14.5' below grade.
5.0									
6.0									
7.0									
8.0				S1*	SS	8-9-7-9			
9.0									
10.0				S2*	SS	8-6-12-8			
		Stratum IF	414.3						
11.0		Virgin soil consisting of brown and orange brown fine sand and silty clay with rock fragments.							
12.0									
13.0				S3*	SS	11-13-9-15			
14.0									
15.0									
16.0		**Stratum VS**	408.8						
17.0		**Auger refusal.**							

Drilled By: Corcoran Drilling Inc.

Drill Method: 6" hollow stem auger 0' - 16.5'

Drill Date: 7-19-2003

Hole Size: 6"

Datum: local

Sheet: 1 of 1

Project No: 1062G1

Project: Gibble's Quarry

Client: TCS Family Enterprises

Site Location: Manheim BO, Lancaster CO. **Engineer:** FC

Test Boring No: A19

Surface Elevation: 428.9'

Test Boring Depth: 16.5'

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SUBSURFACE PROFILE				SAMPLE					
Depth	Symbol	Description	Depth/Elev.	Number	Type	Blows/6"	Symbol	Shear Strength blows/ft (10 20 30 40 50)	Remarks
0.0		Ground Surface	428.9						Auger probe dry after 5 minutes.
		Topsoil and roots.	428.4						
1.0		Fill material consisting of limestone derived soils, some shale, occasional construction debris.							Auger probe dry after 24 hours.
2.0									* Soil sample is moist.
3.0									
4.0									Auger refusal at 16.5' depth after hard to very hard augering through rock from 14.0' below grade.
5.0									
6.0									
7.0									
8.0				S1*	SS	6-8-9-12			
		Stratum IF	419.9						
9.0		Virgin soil consisting of brown and orange brown fine sand and silty clay with rock fragments.							
10.0				S2*	SS	8-7-11-9			
11.0									
12.0				S3*	SS	9-12-19-21			
13.0									
14.0									
15.0									
16.0		**Stratum VS**	412.4						
		Auger refusal.							
17.0									

Drilled By: Corcoran Drilling Inc.

Drill Method: 6" hollow stem auger 0' - 16.5'

Drill Date: 7-19-2003

Hole Size: 6"

Datum: local

Sheet: 1 of 1

SCHUYLKILL VALLEY ENGINEERING, INC.
TEST PIT LOG: P1

GIBBLE'S QUARRY
MANHEIM BOROUGH, LANCASTER COUNTY, PENNSYLVANIA

SVEI Project 1062G1

Ground Elevation: 429.2'; Test pit depth: 6.0'; Excavator: Krater's Groundworks;
Groundwater Elevation: N/A; Date: July 9, 2003 SVEI Rep: Florin Carjan P.E.

Elevation Depth	Description	Remarks
429.2' (0.0')	Ground Surface	
428.8' (0.4')	Topsoil with roots	
424.0' (5.2')	Fill material with limestone derived soils, shale and occasional topsoil	The fill material encountered is moist and in a medium dense condition. The rock fragments consist of shale, up to 6" in size.
	Foundry sand, black and dark brown mixed with 2A modified stone and occasional construction debris.	

Test pit terminated at 423.2' (6' depth)

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SCHUYLKILL VALLEY ENGINEERING, INC.
TEST PIT LOG: P2

GIBBLE'S QUARRY
MANHEIM BOROUGH, LANCASTER COUNTY, PENNSYLVANIA

SVEI Project 1062G1

Ground Elevation: 428.7'; Test pit depth: 5.0'; Excavator: Krater's Groundworks;
Groundwater Elevation: N/A; Date: July 9, 2003 SVEI Rep: Florin Carjan P.E.

Elevation Depth	Description	Remarks
428.7' (0.0')	Ground Surface	
428.3' (0.4')	Topsoil with roots	
424.4' (4.3')	Fill material with limestone derived soils, shale and occasional topsoil	Test pit located at the western side of the property. The fill material encountered is moist and in a medium dense condition. The rock fragments consist of shale, up to 6" in size.
	Foundry sand, black and dark brown mixed with 2A modified stone and occasional construction debris.	

Test pit terminated at 423.7' (5' depth)

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SCHUYLKILL VALLEY ENGINEERING, INC.
TEST PIT LOG: P3

GIBBLE'S QUARRY
MANHEIM BOROUGH, LANCASTER COUNTY, PENNSYLVANIA

SVEI Project 1062G1

Ground Elevation: 428.7'; Test pit depth: 4.0'; Excavator: Krater's Groundworks;
Groundwater Elevation: N/A; Date: July 9, 2003 SVEI Rep: Florin Carjan P.E.

Elevation Depth	Description		Remarks
428.7' (0.0')	Ground Surface		
428.3' (0.4')	Topsoil with roots		
425.5' (3.2')	Fill material with limestone derived soils, shale and occasional topsoil		Test pit located at the western side of the property. The fill material encountered is moist and in a medium dense condition. The rock fragments consist of shale, up to 6" in size.
	Foundry sand, black and dark brown mixed with 2A modified stone and occasional construction debris.		The foundry material encountered is mixed with limestone derived soils.

Test pit terminated at 424.7' (4' depth)

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SCHUYLKILL VALLEY ENGINEERING, INC.
TEST PIT LOG: P4

GIBBLE'S QUARRY
MANHEIM BOROUGH, LANCASTER COUNTY, PENNSYLVANIA

SVEI Project 1062G1

Ground Elevation: 427.9'; Test pit depth: 3.0'; Excavator: Krater's Groundworks;
Groundwater Elevation: N/A; Date: July 9, 2003 SVEI Rep: Florin Carjan P.E.

Elevation Depth	Description	Remarks
427.9' (0.0')	Ground Surface	
427.5' (0.4')	Topsoil with roots	
425.6' (2.3')	Fill material with limestone derived soils and occasional topsoil	The fill material encountered is moist and in a medium dense condition. Occasional limestone fragments observed in the composition of the fill.
	Foundry sand, black and dark brown mixed with 2A modified stone, silty clay and occasional construction debris.	The foundry sand is a mixture of rock fragments and brown silty clay.

Test pit terminated at 424.9' (3' depth)

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SCHUYLKILL VALLEY ENGINEERING, INC.

TEST PIT LOG: P5

GIBBLE'S QUARRY
MANHEIM BOROUGH, LANCASTER COUNTY, PENNSYLVANIA

SVEI Project 1062G1

Ground Elevation: 426.7'; Test pit depth: 3.0'; Excavator: Krater's Groundworks;
Groundwater Elevation: N/A; Date: July 9, 2003 SVEI Rep: Florin Carjan P.E.

Elevation Depth	Description	Remarks
426.7' (0.0')	Ground Surface	
426.2' (0.5')	**Topsoil with roots and limestone fragments.**	
424.5' (2.2')	**Fill material** with limestone derived soils, occasional topsoil and 2A modified stone	Test pit is located next to the entrance from Colebrook Street. The fill material encountered is moist and in a medium dense condition.
	Foundry sand, black and dark brown mixed with 2A modified stone and occasional construction debris.	

Test pit terminated at 423.7' (3' depth)

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SCHUYLKILL VALLEY ENGINEERING, INC.
TEST PIT LOG: P6

GIBBLE'S QUARRY
MANHEIM BOROUGH, LANCASTER COUNTY, PENNSYLVANIA

SVEI Project 1062G1

Ground Elevation: 422.9'; Test pit depth: 9.0'; Excavator: Krater's Groundworks;
Groundwater Elevation: N/A; Date: July 9, 2003 SVEI Rep: Florin Carjan P.E.

Elevation Depth	Description	Remarks
422.9' (0.0')	**Ground Surface**	
422.4' (0.5')	**Topsoil with roots and rock fragments.**	
419.7' (3.2')	**Fill material** with limestone derived soils, 2A modified stone and occasional topsoil	The test pit is located south of the Colebrook entrance at the western side. The fill material encountered is moist and in a medium dense condition.
414.9' (8.0')	**Incinerator waste** including ashes, glass, wood, construction debris, 2A modified stone and occasional construction debris.	The miscellaneous fill material encountered is localized. The excavation determined that a pit was excavated and filled with this material.
	Virgin soil consisting of orange brown and brown fine sand and silty clay with occasional rock fragments.	The virgin soil is in a medium dense condition and moist.

Test pit terminated at 413.9' (9' depth)

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SCHUYLKILL VALLEY ENGINEERING, INC.
TEST PIT LOG: P7

GIBBLE'S QUARRY
MANHEIM BOROUGH, LANCASTER COUNTY, PENNSYLVANIA

SVEI Project 1062G1

Ground Elevation: 422.7'; Test pit depth: 9.0'; Excavator: Krater's Groundworks;
Groundwater Elevation: N/A; Date: July 9, 2003 SVEI Rep: Florin Carjan P.E.

Elevation Depth	Description		Remarks
422.7' (0.0')	Ground Surface		
422.3' (0.4')	Topsoil with roots		
414.7' (8.0')	Virgin soil consisting of brown and light brown fine sand and silty clay with occasional rock fragments.		The virgin soil is in a medium dense to dense condition and fairly dry.
	Weathered limestone, moderately, with silts and sands.		Excavation stopped due to encountering large rock fragments.

Test pit terminated at 413.7' (9' depth)

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SCHUYLKILL VALLEY ENGINEERING, INC.
TEST PIT LOG: P8

GIBBLE'S QUARRY
MANHEIM BOROUGH, LANCASTER COUNTY, PENNSYLVANIA

SVEI Project 1062G1

Ground Elevation: 427.5'; Test pit depth: 6.0'; Excavator: Krater's Groundworks;
Groundwater Elevation: N/A; Date: July 9, 2003 SVEI Rep: Florin Carjan P.E.

Elevation Depth	Description	Remarks
427.5' (0.0')	Ground Surface	
427.1' (0.4')	Topsoil with roots	
422.4' (5.1')	Fill material with limestone derived soils, shale and occasional topsoil	The fill material encountered is moist and in a medium dense condition. The rock fragments consist of shale, up to 6" in size.
	Large limestone fragments mixed with orange brown fine sand and silty clay soils.	Excavation was stopped due to side collapse; however, virgin soil noted at 6' depth .

Test pit terminated at 421.5' (6' depth)

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SCHUYLKILL VALLEY ENGINEERING, INC.
TEST PIT LOG: P9

GIBBLE'S QUARRY
MANHEIM BOROUGH, LANCASTER COUNTY, PENNSYLVANIA

SVEI Project 1062G1

Ground Elevation: 426.7'; Test pit depth: 4.0'; Excavator: Krater's Groundworks;
Groundwater Elevation: N/A; Date: July 9, 2003 SVEI Rep: Florin Carjan P.E.

Elevation Depth	Description	Remarks
426.7' (0.0')	Ground Surface	
428.2' (0.4')	Topsoil with roots and rock fragments	
424.5' (2.2')	Fill material with limestone derived soils, shale and occasional topsoil	The fill material encountered is moist and in a medium dense condition. The rock fragments consist of shale, up to 6" in size.
	Foundry sand, black and dark brown, occasional construction debris and glass fragments.	Very easy to excavate, moist, no side collapse.

Test pit terminated at 422.7' (4' depth)

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SCHUYLKILL VALLEY ENGINEERING, INC.
TEST PIT LOG: P10

GIBBLE'S QUARRY
MANHEIM BOROUGH, LANCASTER COUNTY, PENNSYLVANIA

SVEI Project 1062G1

Ground Elevation: 421.6'; Test pit depth: 11.0'; Excavator: Krater's Groundworks;
Groundwater Elevation: N/A; Date: July 9, 2003 SVEI Rep: Florin Carjan P.E.

Elevation Depth	Description	Remarks
421.6' (0.0')	Ground Surface	
421.1' (0.5')	**Topsoil with roots and rock fragments.**	
418.1' (3.5')	**Fill material** with limestone derived soils, 2A modified stone and occasional topsoil	The test pit is located east of the Colebrook entrance. The fill material encountered is moist and in a medium dense condition.
411.6' (10.0')	**Incinerator waste** including ashes, glass, wood, construction debris, 2A modified stone and occasional construction debris.	The miscellaneous fill material encountered is localized. The excavation determined that a pit was excavated and filled with this material.
	Virgin soil consisting of orange brown and brown fine sand and silty clay with occasional rock fragments.	The virgin soil is in a medium dense condition and moist.

Test pit terminated at 410.6' (11' depth)

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SCHUYLKILL VALLEY ENGINEERING, INC.
TEST PIT LOG: P11

GIBBLE'S QUARRY
MANHEIM BOROUGH, LANCASTER COUNTY, PENNSYLVANIA

SVEI Project 1062G1

Ground Elevation: 422.5'; Test pit depth: 9.0'; Excavator: Krater's Groundworks;
Groundwater Elevation: N/A; Date: July 9, 2003 SVEI Rep: Florin Carjan P.E.

Elevation Depth	Description	Remarks
422.5' (0.0')	Ground Surface	
422.1' (0.4')	Topsoil with roots	
414.5' (8.0')	Virgin soil consisting of brown and light brown fine sand and silty clay with occasional rock fragments.	The virgin soil is in a medium dense to dense condition and fairly dry.
	Weathered limestone, moderately, with silts and sands.	Excavation stopped due to encountering large rock fragments.

Test pit terminated at 413.5' (9' depth)

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SCHUYLKILL VALLEY ENGINEERING, INC.

TEST PIT LOG: P12

GIBBLE'S QUARRY
MANHEIM BOROUGH, LANCASTER COUNTY, PENNSYLVANIA

SVEI Project 1062G1

Ground Elevation: 419.9'; Test pit depth: 9.0'; Excavator: Krater's Groundworks;
Groundwater Elevation: N/A; Date: July 9, 2003 SVEI Rep: Florin Carjan P.E.

Elevation Depth	Description	Remarks
419.9' (0.0')	Ground Surface	
419.5' (0.4')	Topsoil with roots	
411.9' (8.0')	**Virgin soil** consisting of brown and light brown fine sand and silty clay with rock fragments.	Test pit located central at the southern part of the site. The virgin soil is in a medium dense to dense condition and fairly dry. Increased content of limestone fragments noted between 5' to 8' depth.
	Weathered limestone, moderately, with silts and sands.	Excavation stopped due to encountering large rock fragments.

Test pit terminated at 410.9' (9' depth)

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TEST PIT LOG: P13

GIBBLE'S QUARRY
MANHEIM BOROUGH, LANCASTER COUNTY, PENNSYLVANIA

SVEI Project 1062G1

Ground Elevation: 416.5'; Test pit depth: 10.0'; Excavator: Krater's Groundworks;
Groundwater Elevation: N/A; Date: July 9, 2003 SVEI Rep: Florin Carjan P.E.

Elevation Depth	Description	Remarks
416.5' (0.0')	Ground Surface	
416.0' (0.5')	Vegetation and roots	
407.5' (9.0)	**Miscellaneous fill material** consisting from limestone derived soils, household waste, plastic, foundry sand metal, wood, rock fragments, etc.	The test pit is located in the uncovered part of the quarry. The fill material encountered is wet stating from approximately 6' depth. Old vegetation and wood was encountered between 6' to 8' depth. The excavation was extended south to locate the undisturbed part of the quarry. The transition between the virgin and disturbed part of the quarry is steep. No groundwater was noted in the test pit for approximately 4 hours.
	Weathered limestone, moderate to slight.	Excavation was stopped due to encountering rock.

Test pit terminated at 406.5' (10' depth)

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SCHUYLKILL VALLEY ENGINEERING, INC.
TEST PIT LOG: P14

GIBBLE'S QUARRY
MANHEIM BOROUGH, LANCASTER COUNTY, PENNSYLVANIA

SVEI Project 1062G1

Ground Elevation: 415.8'; Test pit depth: 10.0'; Excavator: Krater's Groundworks;
Groundwater Elevation: 409.3'; Date: July 9, 2003 SVEI Rep: Florin Carjan P.E.

Elevation Depth	Description	Remarks
415.8' (0.0')	Ground Surface	
415.3' (0.5')	Vegetation and roots, some topsoil	
407.8' (8.0)	**Miscellaneous fill material** consisting from limestone derived soils, household waste, plastic, foundry sand metal, wood, rock fragments, etc.	The test pit is located in the uncovered part of the quarry, eastern part. The fill material encountered is wet starting from approximately 6' depth. Old vegetation and wood was encountered between 5.5' to 8' depth. The excavation was extended south to locate the undisturbed part of the quarry. The transition between the virgin and disturbed part of the quarry is moderate to steep. Groundwater was noted in the test pit at 6' after 4 hours.
	Weathered limestone, moderate to slight, mixed with orange brown and brown fine sand and silty clay.	Excavation was stopped due to encountering large rock fragments. Possible fill.

Test pit terminated at 405.8' (10' depth)

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SCHUYLKILL VALLEY ENGINEERING, INC.
TEST PIT LOG: P15

GIBBLE'S QUARRY
MANHEIM BOROUGH, LANCASTER COUNTY, PENNSYLVANIA

SVEI Project 1062G1

Ground Elevation: 415.3'; Test pit depth: 9.0'; Excavator: Krater's Groundworks;
Groundwater Elevation: N/A; Date: July 9, 2003 SVEI Rep: Florin Carjan P.E.

Elevation Depth	Description		Remarks
415.3' (0.0')	Ground Surface		
414.9' (0.4')	Topsoil with roots		
407.3' (8.0')	**Virgin soil** consisting of brown and light brown fine sand and silty clay with rock fragments.		Test pit located central at the eastern part of the site. The virgin soil is in a medium dense to dense condition and fairly dry. Increased content of limestone fragments noted between 6' to 8' depth.
	Weathered limestone, moderately, with silts and sands.		Excavation stopped due to encountering large rock fragments.

Test pit terminated at 406.3' (9' depth)

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SCHUYLKILL VALLEY ENGINEERING, INC.
TEST PIT LOG: P16

GIBBLE'S QUARRY
MANHEIM BOROUGH, LANCASTER COUNTY, PENNSYLVANIA

SVEI Project 1062G1

Ground Elevation: 415.2'; Test pit depth: 11.5'; Excavator: Krater's Groundworks;
Groundwater Elevation: 408.2'; Date: July 9, 2003 SVEI Rep: Florin Carjan P.E.

Elevation Depth	Description	Remarks
415.2' (0.0')	Ground Surface	
414.7' (0.5')	Vegetation and roots	
405.7' (9.5)	**Miscellaneous fill material** consisting from limestone derived soils, household waste, plastic, foundry sand metal, wood, tires, rock fragments, etc.	The test pit is located in the uncovered part of the quarry at the northeastern side. The fill material encountered is wet stating from approximately 6' depth. Old vegetation and wood was encountered between 6' to 8' depth. The excavation was extended north to locate the undisturbed part of the quarry. The transition between the virgin and disturbed part of the quarry is steep. Groundwater was noted in the test pit at 7' after approximately 4 hours.
	Weathered limestone, moderate to slight.	Excavation was stopped due to encountering rock.

Test pit terminated at 404.7' (10.5' depth)

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SCHUYLKILL VALLEY ENGINEERING, INC.
TEST PIT LOG: P17

GIBBLE'S QUARRY
MANHEIM BOROUGH, LANCASTER COUNTY, PENNSYLVANIA

SVEI Project 1062G1

Ground Elevation: 420.7'; Test pit depth: 11.0'; Excavator: Krater's Groundworks;
Groundwater Elevation: N/A; Date: July 9, 2003 SVEI Rep: Florin Carjan P.E.

Elevation Depth	Description	Remarks
420.7' (0.0')	Ground Surface	
420.2' (0.5')	Vegetation and roots	
410.5' (10.2')	**Miscellaneous fill material** consisting from limestone derived soils, household waste, plastic, foundry sand metal, wood, rock fragments, etc.	The test pit is located in the uncovered part of the quarry. The fill material encountered is wet stating from approximately 9' depth. The excavation was extended north to locate the undisturbed part of the quarry; however, the test pit collapsed. No groundwater measurements were possible due to test pit collapse.
	Weathered limestone, moderate to slight, and brown and light brown silty clay.	Excavation was stopped due to encountering large rock fragments and side collapse.

Test pit terminated at 409.7' (11' depth)

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SCHUYLKILL VALLEY ENGINEERING, INC.
TEST PIT LOG: P18

GIBBLE'S QUARRY
MANHEIM BOROUGH, LANCASTER COUNTY, PENNSYLVANIA

SVEI Project 1062G1

Ground Elevation: 426.2'; Test pit depth: 7.0'; Excavator: Krater's Groundworks;
Groundwater Elevation: N/A; Date: July 9, 2003 SVEI Rep: Florin Carjan P.E.

Elevation Depth	Description		Remarks
426.2' (0.0')	Ground Surface		
425.7' (0.5')	Topsoil and roots		
419.2' (7.0)	Fill material consisting from shale derived soils, some topsoil and roots, and shale fragments.		The test pit is located in the covered part of the quarry, northwestern corner. The size of rock fragments increases with depth and the fines content decreases with depth. The excavation was stopped prior to encountering miscellaneous fill material due to frequent side collapse. No groundwater was noted in the excavation.

Test pit terminated at 419.2' (7' depth)

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SCHUYLKILL VALLEY ENGINEERING, INC.
TEST PIT LOG: P19

GIBBLE'S QUARRY
MANHEIM BOROUGH, LANCASTER COUNTY, PENNSYLVANIA

SVEI Project 1062G1

Ground Elevation: 418.6'; Test pit depth: 11.0'; Excavator: Krater's Groundworks;
Groundwater Elevation: 409.6'; Date: July 9, 2003 SVEI Rep: Florin Carjan P.E.

Elevation Depth	Description		Remarks
418.6' (0.0')	Ground Surface		
418.1' (0.5')	Vegetation and roots		
407.6' (11.0')	**Miscellaneous fill material** consisting from limestone derived soils, household waste, plastic, foundry sand metal, wood, rock fragments, etc.		The test pit is located in the uncovered part of the quarry at the southern side. The fill material encountered is wet stating from approximately 9' depth. The excavation was stopped at 11' due to the limitation of the equipment. Groundwater was seeping in at 9' depth, however, the flow was limited due to clayey soils.

Test pit terminated at 407.6' (11' depth)

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SCHUYLKILL VALLEY ENGINEERING, INC.
TEST PIT LOG: P20

GIBBLE'S QUARRY
MANHEIM BOROUGH, LANCASTER COUNTY, PENNSYLVANIA

SVEI Project 1062G1

Ground Elevation: 419.3'; Test pit depth: 13.0'; Excavator: Krater's Groundworks;
Groundwater Elevation: N/A; Date: July 9, 2003 SVEI Rep: Florin Carjan P.E.

Elevation Depth	Description	Remarks
419.3' (0.0')	Ground Surface	
418.0' (1.3')	Topsoil, roots and stone	
408.3' (11.0')	Miscellaneous fill material consisting of demolition debris, wood, metal limestone derived soil, trace of foundry sand.	The test pit is located in the uncovered part of the quarry. The fill material encountered is wet stating from approximately 9' depth. The excavation was extended south to locate the undisturbed part of the quarry. The transition toward south is steep. Virgin soil was encountered immediately north of the test pit. Possible a pit filled with miscellaneous fill material. No groundwater measurements were possible due to no accumulation after 2 hours.
	Virgin soil consisting of brown and light brown fine sand and silty clay with rock fragments.	The content and size of the limestone fragments increases with depth.

Test pit terminated at 406.3' (13' depth)

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SCHUYLKILL VALLEY ENGINEERING, INC.
TEST PIT LOG: P21

GIBBLE'S QUARRY
MANHEIM BOROUGH, LANCASTER COUNTY, PENNSYLVANIA

SVEI Project 1062G1

Ground Elevation: 420.9'; Test pit depth: 9.0'; Excavator: Krater's Groundworks;
Groundwater Elevation: 413.9'; Date: July 9, 2003 SVEI Rep: Florin Carjan P.E.

Elevation Depth	Description	Remarks
420.9' (0.0')	Ground Surface	
420.4' (0.5')	Vegetation and roots.	
411.9' (9.0')	Miscellaneous fill material consisting of demolition debris, wood, metal, limestone derived soil, foundry sand, etc.	The test pit is located in the uncovered part of the quarry. The fill material encountered is wet stating from approximately 7' depth. The excavation was abandoned due to perched water conditions and side collapse.

Test pit terminated at 411.9' (9' depth)

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TEST PIT LOG: P22

GIBBLE'S QUARRY
MANHEIM BOROUGH, LANCASTER COUNTY, PENNSYLVANIA

SVEI Project 1062G1

Ground Elevation: 423.2'; Test pit depth: 10.0'; Excavator: Krater's Groundworks;
Groundwater Elevation: 415.2'; Date: July 9, 2003 SVEI Rep: Florin Carjan P.E.

Elevation Depth	Description	Remarks
423.2' (0.0')	Ground Surface	
422.8' (0.4')	Topsoil with roots	
416.2' (7.0')	Fill material with limestone derived soils, shale and occasional topsoil	The fill material encountered is moist and in a medium dense condition. The rock fragments consist of shale, up to 6" in size.
	Foundry sand, black and dark brown and occasional construction debris.	The foundry sand is saturated and collapsed frequently. Groundwater encountered at 8' below grade.

Test pit terminated at 413.2' (10' depth)

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SCHUYLKILL VALLEY ENGINEERING, INC.
TEST PIT LOG: P23

GIBBLE'S QUARRY
MANHEIM BOROUGH, LANCASTER COUNTY, PENNSYLVANIA

SVEI Project 1062G1

Ground Elevation: 422.6'; Test pit depth: 10.0'; Excavator: Krater's Groundworks;
Groundwater Elevation: 413.6'; Date: July 9, 2003 SVEI Rep: Florin Carjan P.E.

Elevation Depth	Description	Remarks
422.6' (0.0')	**Ground Surface**	
422.2' (0.4')	**Topsoil with roots**	
418.6' (4.0')	**Fill material** with limestone derived soils, shale and occasional topsoil	The fill material encountered is moist and in a medium dense condition. The rock fragments consist of shale, up to 12" in size.
	Miscellaneous fill material consisting of concrete, metal, foundry sand, large rock fragments, etc.	The materials encountered are related to demolition of concrete foundations and slab. Groundwater encountered at 9' below grade. Stopped excavation due to large size of the concrete and rock fragments.

Test pit terminated at 413.6' (9' depth)

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TEST PIT LOG: Pa

GIBBLE'S QUARRY
MANHEIM BOROUGH, LANCASTER COUNTY, PENNSYLVANIA

SVEI Project 1062G1

Ground Elevation: 429.2'; Test pit depth: 12.0'; Excavator: Irish Creek Excavation; Groundwater Elevation: N/A; Date: July 20, 2003 SVEI Rep: Florin Carjan P.E.

Elevation Depth	Description	Remarks
429.2' (0.0')	**Ground Surface**	
428.8' (0.4')	**Topsoil with roots**	
423.2' (6.0)	**Fill material** with limestone derived soils, shale and occasional topsoil	The fill material encountered is moist and in a medium dense condition. The rock fragments consist of shale, up to 6" in size.
418.2' (11.0')	**Foundry sand, black and dark brown** mixed with occasional construction debris and 2A modified stone.	Easy excavation through the foundry sand. The material is moist to wet. No groundwater was noted after 2 hours.
	Virgin soil consisting of brown and light brown fine sand and silty clay with occasional rock fragments.	Fairly hard excavation through virgin soil and pinnacled limestone.

Test pit terminated at 417.2' (12' depth)

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TEST PIT LOG: Pb

GIBBLE'S QUARRY
MANHEIM BOROUGH, LANCASTER COUNTY, PENNSYLVANIA

SVEI Project 1062G1

Ground Elevation: 428.1'; Test pit depth: 11.0'; Excavator: Irish Creek Excavation;
Groundwater Elevation: N/A; Date: July 20, 2003 SVEI Rep: Florin Carjan P.E.

Elevation Depth	Description	Remarks
428.1' (0.0')	**Ground Surface**	
427.7' (0.4')	**Topsoil with roots**	
424.1 (4.0')	**Fill material** with limestone derived soils, shale and occasional topsoil	Test pit located at the western side of the property. The fill material encountered is moist and in a medium dense condition. The rock fragments consist of shale, up to 6" in size.
418.1' (10.0')	**Foundry sand, black and dark brown** mixed with 2A modified stone, 4" stone and occasional construction debris.	Easy excavation through the foundry sand. The material is moist to wet. No groundwater was noted after 2 hours.
	Virgin soil consisting of brown and light brown fine sand and silty clay with occasional rock fragments.	Fairly hard excavation through virgin soil and pinnacled limestone fragments.

Test pit terminated at 417.1' (11' depth)

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TEST PIT LOG: Pc

GIBBLE'S QUARRY
MANHEIM BOROUGH, LANCASTER COUNTY, PENNSYLVANIA

SVEI Project 1062G1

Ground Elevation: 427.6; Test pit depth: 12.5'; Excavator: Irish Creek Excavation;
Groundwater Elevation: N/A; Date: July 20, 2003; SVEI Rep: Florin Carjan P.E.

Elevation Depth	Description	Remarks
427.6' (0.0')	Ground Surface	
427.2' (0.4')	Topsoil with roots	
423.6' (4.0')	**Fill material** with limestone derived soils, shale and occasional topsoil	Test pit located at the western side of the property. The fill material encountered is moist and in a medium dense condition. The rock fragments consist of shale, up to 6" in size.
416.1' (11.5')	**Foundry sand, black and dark brown** mixed with 2A modified stone, 4" ballast and occasional construction debris.	Easy excavation through the foundry sand. The material is moist to wet. No groundwater was noted after 2 hours.
	Virgin soil consisting of brown and light brown fine sand and silty clay with occasional rock fragments.	Fairly hard excavation through virgin soil and pinnacled limestone fragments.

Test pit terminated at 415.1' (12.5' depth)

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TEST PIT LOG: Pe

GIBBLE'S QUARRY
MANHEIM BOROUGH, LANCASTER COUNTY, PENNSYLVANIA

SVEI Project 1062G1

Ground Elevation: 422.2; Test pit depth: 16.0'; Excavator: Irish Creek Excavation;

Groundwater Elevation: N/A; Date: July 20, 2003; SVEI Rep: Florin Carjan P.E.

Elevation Depth	Description	Remarks
422.2' (0.0')	Ground Surface	
421.8' (0.4')	Topsoil with roots	
416.2' (6.0')	**Fill material** with limestone derived soils, some shale and occasional topsoil	Test pit located at the northern part of the property. The fill material encountered is moist and in a medium dense condition. The rock fragments consist of limestone, up to 12" in size.
406.7' (15.5)	**Foundry sand, black and dark brown** mixed with 2A modified stone, onsite limestone derived soils, and occasional construction debris.	Hard to very hard excavation through the foundry sand and stone. The foundry sand is moist, however, no groundwater noted to seep into the excavation. Starting from 12' depth the foundry sand is mixed with onsite soil and some construction debris in a medium dense condition. The test pit was advanced to the north and encountered a steep transition to virgin soil.
	Virgin soil consisting of brown and light brown fine sand and silty clay with occasional rock fragments.	Hard excavation through virgin soil and pinnacled limestone fragments.

Test pit terminated at 406.2' (16.0' depth)

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TEST PIT LOG: Pd

GIBBLE'S QUARRY
MANHEIM BOROUGH, LANCASTER COUNTY, PENNSYLVANIA

SVEI Project 1062G1

Ground Elevation: 426.9; Test pit depth: 13.0'; Excavator: Irish Creek Excavation;
Groundwater Elevation: N/A; Date: July 20, 2003; SVEI Rep: Florin Carjan P.E.

Elevation Depth	Description	Remarks
426.9' (0.0')	Ground Surface	
426.5' (0.4')	Topsoil with roots	
424.4' (2.5')	**Fill material** with limestone derived soils, shale and occasional topsoil	Test pit located at the western side of the property. The fill material encountered is moist and in a medium dense condition. The rock fragments consist of shale, up to 6" in size.
414.9' (12.0')	**Foundry sand, black and dark brown** mixed with 2A modified stone, 4" ballast and occasional construction debris.	Hard to very hard excavation through the foundry sand and ballast. Possible placed during foundry sand dumping to improve the entrance road. The fill material is dry. No groundwater was noted after 2 hours.
	Virgin soil consisting of brown and light brown fine sand and silty clay with occasional rock fragments.	Fairly hard excavation through virgin soil and pinnacled limestone fragments.

Test pit terminated at 413.9' (13.0' depth)

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TEST PIT LOG: Pe

GIBBLE'S QUARRY
MANHEIM BOROUGH, LANCASTER COUNTY, PENNSYLVANIA

SVEI Project 1062G1

Ground Elevation: 422.2; Test pit depth: 16.0'; Excavator: Irish Creek Excavation;
Groundwater Elevation: N/A; Date: July 20, 2003; SVEI Rep: Florin Carjan P.E.

Elevation Depth	Description	Remarks
422.2' (0.0')	Ground Surface	
421.8' (0.4')	Topsoil with roots	
416.2' (6.0')	**Fill material** with limestone derived soils, some shale and occasional topsoil	Test pit located at the northern part of the property. The fill material encountered is moist and in a medium dense condition. The rock fragments consist of limestone, up to 12" in size.
406.7' (15.5)	**Foundry sand, black and dark brown** mixed with 2A modified stone, onsite limestone derived soils, and occasional construction debris.	Hard to very hard excavation through the foundry sand and stone. The foundry sand is moist, however, no groundwater noted to seep into the excavation. Starting from 12' depth the foundry sand is mixed with onsite soil and some construction debris in a medium dense condition. The test pit was advanced to the north and encountered a steep transition to virgin soil.
	Virgin soil consisting of brown and light brown fine sand and silty clay with occasional rock fragments.	Hard excavation through virgin soil and pinnacled limestone fragments.

Test pit terminated at 406.2' (16.0' depth)

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TEST PIT LOG: Pf

GIBBLE'S QUARRY
MANHEIM BOROUGH, LANCASTER COUNTY, PENNSYLVANIA

SVEI Project 1062G1

Ground Elevation: 426.7; Test pit depth: 11.0'; Excavator: Irish Creek Excavation; Groundwater Elevation: 417.7'; Date: July 20, 2003; SVEI Rep: Florin Carjan P.E.

Elevation Depth	Description		Remarks
426.7' (0.0')	Ground Surface		
426.3' (0.4')	Topsoil with roots		
416.7' (10.0')	Fill material with limestone derived soils, shale and occasional topsoil		Test pit located at the western side of the property. The fill material encountered is moist and in a medium dense condition. The rock fragments consist of shale, up to 12" in size. At 9' perched water start seeping into the excavation. Virgin soil mixed with foundry sand noted at 10'; however, could not identify precisely the presence of virgin soil.
	Possible Virgin soil mixed with some foundry sand.		Excavation stopped due to test pit collapse.

Test pit terminated at 415.7' (11.0' depth)

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TEST PIT LOG: Pg

GIBBLE'S QUARRY
MANHEIM BOROUGH, LANCASTER COUNTY, PENNSYLVANIA

SVEI Project 1062G1

Ground Elevation: 425.9; Test pit depth: 14.0'; Excavator: Irish Creek Excavation;
Groundwater Elevation: N/A; Date: July 20, 2003; SVEI Rep: Florin Carjan P.E.

Elevation Depth	Description	Remarks
425.9' (0.0')	Ground Surface	
425.4' (0.5')	Vegetation with roots	
417.4' (8.5')	**Fill material** with limestone derived soils, shale and occasional topsoil	Test pit located at the western side of the property. The fill material encountered is moist and in a medium dense condition. The rock fragments consist of shale and limestone up to 12" in size.
411.9' (14.0')	**Foundry sand, black and dark brown** mixed with 2A modified stone and occasional construction debris.	Fairly easy excavation through the foundry sand and stone. The fill material is moist to wet. No groundwater was noted after 1 hour. Abandoned the test pit due to side collapse.

Test pit terminated at 411.9' (14.0' depth)

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TEST PIT LOG: Ph

GIBBLE'S QUARRY
MANHEIM BOROUGH, LANCASTER COUNTY, PENNSYLVANIA

SVEI Project 1062G1

Ground Elevation: 420.8; Test pit depth: 13.0'; Excavator: Irish Creek Excavation; Groundwater Elevation: 409.8'; Date: July 20, 2003; SVEI Rep: Florin Carjan P.E.

Elevation Depth	Description	Remarks
420.8' (0.0')	Ground Surface	
420.3' (0.4')	Topsoil with roots	
416.8' (4.0')	**Fill material** with limestone derived soils, shale and occasional topsoil	Test pit located at the northern part of the site. The fill material encountered is moist and medium dense. The rock fragments consist of limestone and some shale, up to 12" in size. The thickness of the fill material ranges from 2' to 6' (N-S)
408.8' (12.0')	**Foundry sand, black and dark brown** mixed with 2A modified stone and occasional construction debris.	Fairly easy excavation through the foundry sand and stone. The foundry sand is layered with 2A modified stone between. The furnace sand is dry to approximately 10' and wet to saturated after. The groundwater level is at 11' after 2 hours.
	Virgin soil consisting of brown and light brown fine sand and silty clay with rock fragments.	Fairly hard excavation through virgin soil and pinnacled limestone fragments.

Test pit terminated at 407.8' (13.0' depth)

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TEST PIT LOG: Pi

GIBBLE'S QUARRY
MANHEIM BOROUGH, LANCASTER COUNTY, PENNSYLVANIA

SVEI Project 1062G1

Ground Elevation: 422.7; Test pit depth: 16.0'; Excavator: Irish Creek Excavation;
Groundwater Elevation: 411.7; Date: July 20, 2003; SVEI Rep: Florin Carjan P.E.

Elevation Depth	Description		Remarks
422.7' (0.0')	Ground Surface		
422.3' (0.4')	Topsoil with roots		
413.7' (9.0')	**Fill material** with limestone derived soils, shale and occasional topsoil		Test pit located at the transition line between the deep and shallow part of the quarry. The fill material encountered is moist and medium dense. The rock fragments consist of shale, up to 6" in size. The fill material is layered and includes distinct lifts of limestone derived soils and shale.
406.7' (16.0')	**Foundry sand, black and dark brown,** and occasional construction debris.		Very easy excavation through the foundry sand. The foundry sand is dry up to 10' and wet to saturated after. Groundwater was noted at 11' after 2 hours. Test pit was abandoned due to frequent side collapse

Test pit terminated at 406.7' (16.0' depth)

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TEST PIT LOG: Pj

GIBBLE'S QUARRY
MANHEIM BOROUGH, LANCASTER COUNTY, PENNSYLVANIA

SVEI Project 1062G1

Ground Elevation: 420.9; Test pit depth: 16.0'; Excavator: Irish Creek Excavation; Groundwater Elevation: 409.9'; Date: July 20, 2003; SVEI Rep: Florin Carjan P.E.

Elevation Depth	Description	Remarks
420.9' (0.0')	Ground Surface	
420.5' (0.4')	Topsoil with roots	
413.4' (7.5')	Fill material with limestone derived soils, shale and occasional topsoil	Test pit located at the western side of the property. The fill material encountered is moist and in a medium dense condition. The rock fragments consist of shale, up to 6" in size.
406.4' (14.5')	**Foundry sand, black and dark brown** and occasional construction debris.	Very easy excavation through the foundry sand. The foundry sand is dry up to 10' and wet to saturated after. Groundwater was noted at 11' after 2 hours.
	Possible Virgin soil consisting of brown and light brown fine sand and silty clay with occasional rock fragments, mixed with some foundry sand and rock fragments.	No identification of the borderline between the foundry sand and virgin soil was possible due to water and test pit side collapse.

Test pit terminated at 404.9' (16.0' depth)

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TEST PIT LOG: Pk

GIBBLE'S QUARRY
MANHEIM BOROUGH, LANCASTER COUNTY, PENNSYLVANIA

SVEI Project 1062G1

Ground Elevation: 427.7; Test pit depth: 14.0'; Excavator: Irish Creek Excavation; Groundwater Elevation: N/A; Date: July 20, 2003; SVEI Rep: Florin Carjan P.E.

Elevation Depth	Description		Remarks
427.7' (0.0')	Ground Surface		
427.3' (0.4')	Topsoil with roots		
420.5' (7.2')	Fill material with limestone derived soils, shale and occasional topsoil		Test pit located at the western side of the property. The fill material encountered is moist and in a medium dense condition. The rock fragments consist of shale, up to 6" in size.
414.5' (13.2')	Foundry sand, black and dark brown with 2A modified stone, ballast and occasional construction debris.		Easy to fairly hard excavation through the foundry sand. The foundry sand is dry up to 10' and moist after that. No groundwater was noted after 2 hours.
	Virgin soil consisting of brown and light brown fine sand and silty clay with occasional rock fragments.		The virgin soil is medium dense and moist.

Test pit terminated at 413.7' (14.0' depth)

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MANHEIM QUARRY PHOTOGRAPHIC LOG

Geotechnical and Quality Control Engineers
SCHUYLKILL VALLEY ENGINEERING
4338 Pottsville Pike
Reading, Pennsylvania 19605
Telephone (610) 921-9221 FAX: (610) 921-0464
EMAIL: svei@verizon.net

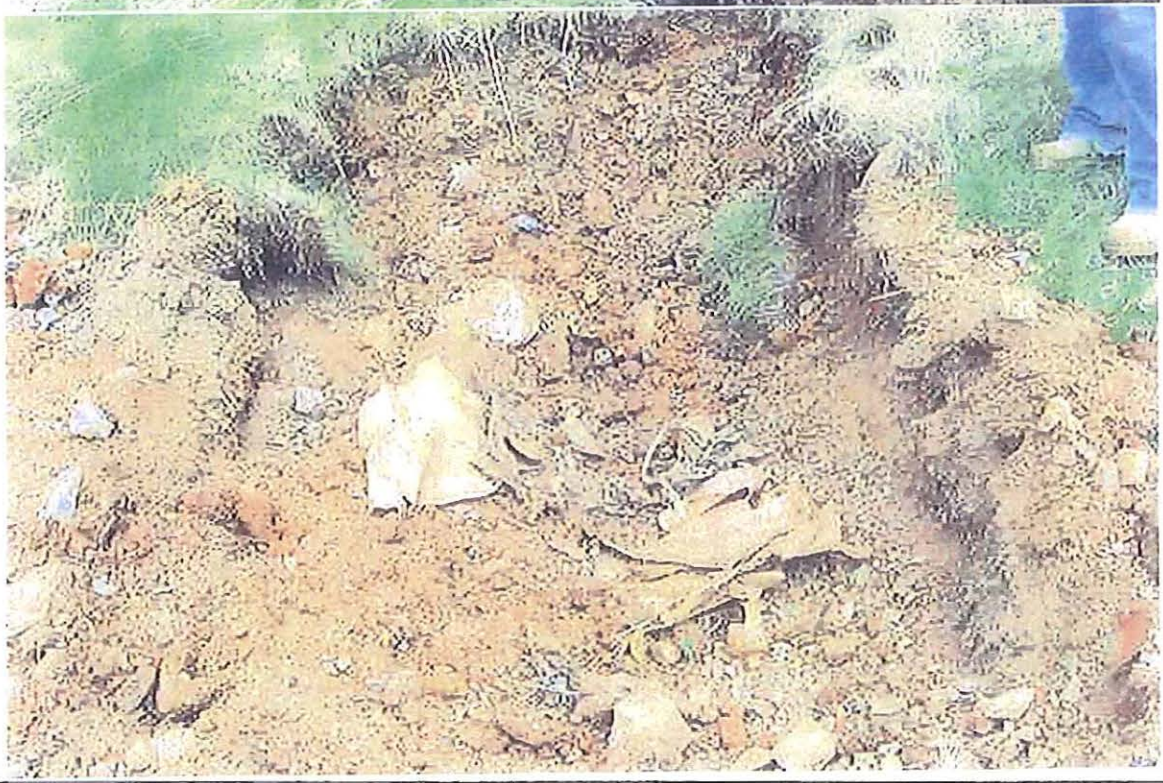
PROJECT 1062G1

GIBBLE'S QUARRY

PICTURE 1: Site view from Hazel Street (south)

PICTURE 2: Test pit #4, limestone soils

MANHEIM, LANCASTER COUNTY, PA



Geotechnical and Quality Control Engineers
SCHUYLKILL VALLEY ENGINEERING
4338 Pottsville Pike
Reading, Pennsylvania 19605
Telephone (610) 921-9221 FAX: (610) 921-0464
EMAIL: svei@verizon.net

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GIBBLE'S QUARRY
PICTURE 3: Test Pit #3
PICTURE 4: Test pit #5, miscellaneous debris.
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Geotechnical and Quality Control Engineers
SCHUYLKILL VALLEY ENGINEERING
4338 Pottsville Pike
Reading, Pennsylvania 19605
Telephone (610) 921-9221 FAX: (610) 921-0464
EMAIL: svei@verizon.net

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GIBBLE'S QUARRY
PICTURE 5: Test Pit #13
PICTURE 6: Test pit #10, miscellaneous debris.
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SCHUYLKILL VALLEY ENGINEERING
4338 Pottsville Pike
Reading, Pennsylvania 19605
Telephone (610) 921-9221 FAX: (610) 921-0464
EMAIL: svei@verizon.net

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PICTURE 7: Test pit #9, limestone soils.
PICTURE 8: Test pit #10, transition area.
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SCHUYLKILL VALLEY ENGINEERING
4338 Pottsville Pike
Reading, Pennsylvania 19605
Telephone (610) 921-9221 FAX: (610) 921-0464
EMAIL: svei@verizon.net

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GIBBLE'S QUARRY
PICTURE 9: Test Pit #9, limestone soils.
PICTURE 10: Test pit #18, shale soils.
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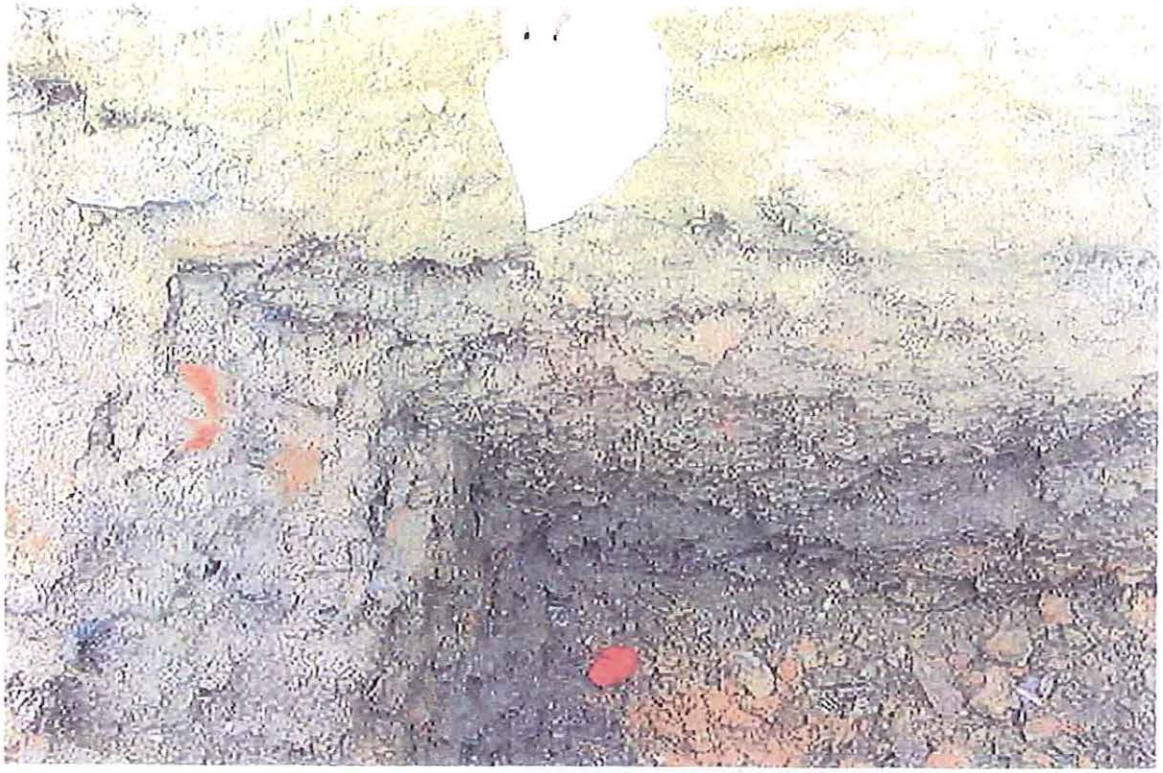

Geotechnical and Quality Control Engineers
SCHUYLKILL VALLEY ENGINEERING
4338 Pottsville Pike
Reading, Pennsylvania 19605
Telephone (610) 921-9221 FAX: (610) 921-0464
EMAIL: svei@verizon.net

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GIBBLE'S QUARRY
PICTURE 11: Test Pit #16, miscellaneous soils.
PICTURE 12: Test pit #17, miscellaneous soils.
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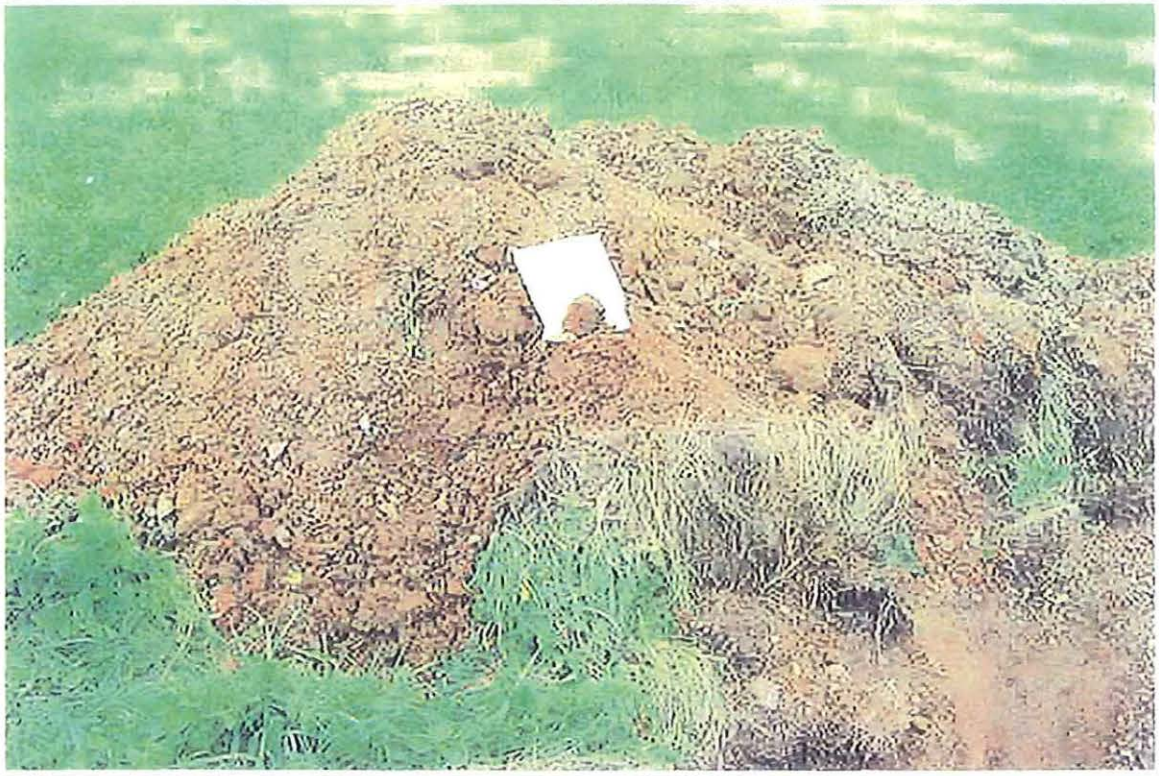

Geotechnical and Quality Control Engineers
SCHUYLKILL VALLEY ENGINEERING
· 4338 Pottsville Pike
Reading, Pennsylvania 19605
Telephone (610) 921-9221 FAX: (610) 921-0464
EMAIL: svei@verizon.net

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GIBBLE'S QUARRY

PICTURE 13: Test Pit #10, transition area.

PICTURE 14: Test pit #8, miscellaneous soils.

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SCHUYLKILL VALLEY ENGINEERING
4338 Pottsville Pike
Reading, Pennsylvania 19605
Telephone (610) 921-9221 FAX: (610) 921-0464
EMAIL: svei@verizon.net

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GIBBLE'S QUARRY

PICTURE 15: Fill material placement (northern side).
PICTURE 16: Fill material placement (southwest side).
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SCHUYLKILL VALLEY ENGINEERING
4338 Pottsville Pike
Reading, Pennsylvania 19605
Telephone (610) 921-9221 FAX: (610) 921-0464
EMAIL: svei@verizon.net

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GIBBLE'S QUARRY

PICTURE 17: Fill material placement (western side).
PICTURE 18: Fill material placement (eastern side).
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SCHUYLKILL VALLEY ENGINEERING
4338 Pottsville Pike
Reading, Pennsylvania 19605
Telephone (610) 921-9221 FAX: (610) 921-0464
EMAIL: svei@verizon.net

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PICTURE 19: Fill material placement (southwest side).

PICTURE 20: Fill material placement (southwest side).

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